

Flight, May 31, 1913.

FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

No. 231. (No. 22, Vol. V.)

MAY 31, 1913.

[Registered at the G.P.O.] [Weekly, Price 8d.
as a Newspaper. Post Free, 8d.]

Flight.

Editorial Office: 44, ST. MARTIN'S LANE, LONDON, W.C.
Telegrams: Truditor, Westrand, London. Telephone: Gerrard 1828.
Annual Subscription Rates, Post Free.
United Kingdom ... 15s. 6d. Abroad ... 20s. 6d.

CONTENTS.

	PAGE
Editorial Comment:	
Committee Elections ...	579
Men of Moment in the World of Flight: Mr. S. F. W. Koolhoven ...	581
An Interesting Ceremony at Hendon ...	582
Empire Day Meeting, Hendon ...	584
The "Tong-Mei" Biplane (with scale drawings) ...	586
Armchair Reflections. By The Dreamer ...	589
Royal Aero Club. Official Notices ...	590
From the British Flying Grounds ...	591
British Notes of the Week ...	596
Foreign Aviation News ...	597
Airship News ...	598
Scientific Instruments. By Horace Darwin, M.A., F.R.S. ...	599
Models. Edited by V. E. Johnson, M.A. ...	601
Monthly Reports of Model Clubs ...	604
Correspondence ...	606

EDITORIAL COMMENT.

Committee Elections.

WE publish another letter this week from Mr. Ackermann on the subject of selective voting at committee elections. We are not at all sorry that this matter should be thrashed out in our columns, for it is one on which difference of opinion unquestionably exists, and it is just as well that everyone concerned should hear both sides of the argument.

We have been acquainted with Mr. Ackermann's policy in the matter for a long while, and we know that several people agree with him. For our own part, however, we are strongly opposed to the adoption of this system in any society at present governed by the normal method unless its pros and cons have been fully made known to the members, and have been debated in their presence. It is a *principle* and not merely a *method* that is at stake.

With Mr. Ackermann's views we have some sympathy. Everyone has surely felt the unsatisfactory character of the situation presented by the necessity of choosing between Jones and Smith, neither of whom one knows. There is Robinson, whose name one has crossed off with a vigorous stroke at the first glance down the ballot list, and there is old Brown, against whom one puts an encouraging tick of approval. The difficulty always

comes in selecting the last few names, and often one is reduced to tossing a coin in order to choose between the candidates.

There can be no question but that one's *inclinations* are entirely with Mr. Ackermann's system of selective voting, which to our unbounded surprise he succeeded in getting adopted at the last general meeting of the Royal Aero Club. But we are far less convinced of the desirability of the change of principles that it involves. If the candidates are permitted to canvass, the new system is open to serious abuse, but whether they canvass or not, it still seems to us that the whole spirit of proportional voting is destroyed by the method that the Royal Aero Club have, unwittingly we should imagine, adopted.

It is not easy to find an argument that is convincing to everyone, but it may, perhaps, help to fix ideas if we suppose that three candidates, A, B and C, have at a certain moment received votes as follows:—

A. 280 votes. B. 270 votes. C. 260 votes.

Let us suppose that there remain 21 electors who are about to record their votes, and let it further be understood that in accordance with the normal method of voting each of these 21 electors is required to record neither more *nor less* than three votes. Under Mr. Ackermann's system the words "nor less" are omitted, and it becomes possible for any or all of the electors to record as *few* votes as they please, provided they do not record more than three votes.

Now the whole point at issue in the matter is this: for the supposed case in which A, B and C are the three candidates under the normal proportionate system of voting, A, B and C each have an established right to one-third of each elector's voting power. So long as A, B and C receive their respective thirds, the influence of the 21 electors does not affect the vote of the majority, which has, under the hypothesis, placed A, B and C in the order mentioned.

But directly the voting system departs from this course it becomes possible for either A, B or C to receive the whole of the 21 votes independently, and this happens not because the elector has the power actually to record more than one vote for one person, but because he is given the right to withhold his vote in respect to someone else. If, in the case in question, candidate C was known to the 21 remaining electors, while candidates A and B were not so known, it is not only conceivable but likely under Mr. Ackermann's system, that candidate C would receive 21 votes, while candidates A and B would receive

no further votes at all. This would place candidate C at the top of the list, above candidates A and B, for whom, under the hypothesis, the majority had cast most votes.

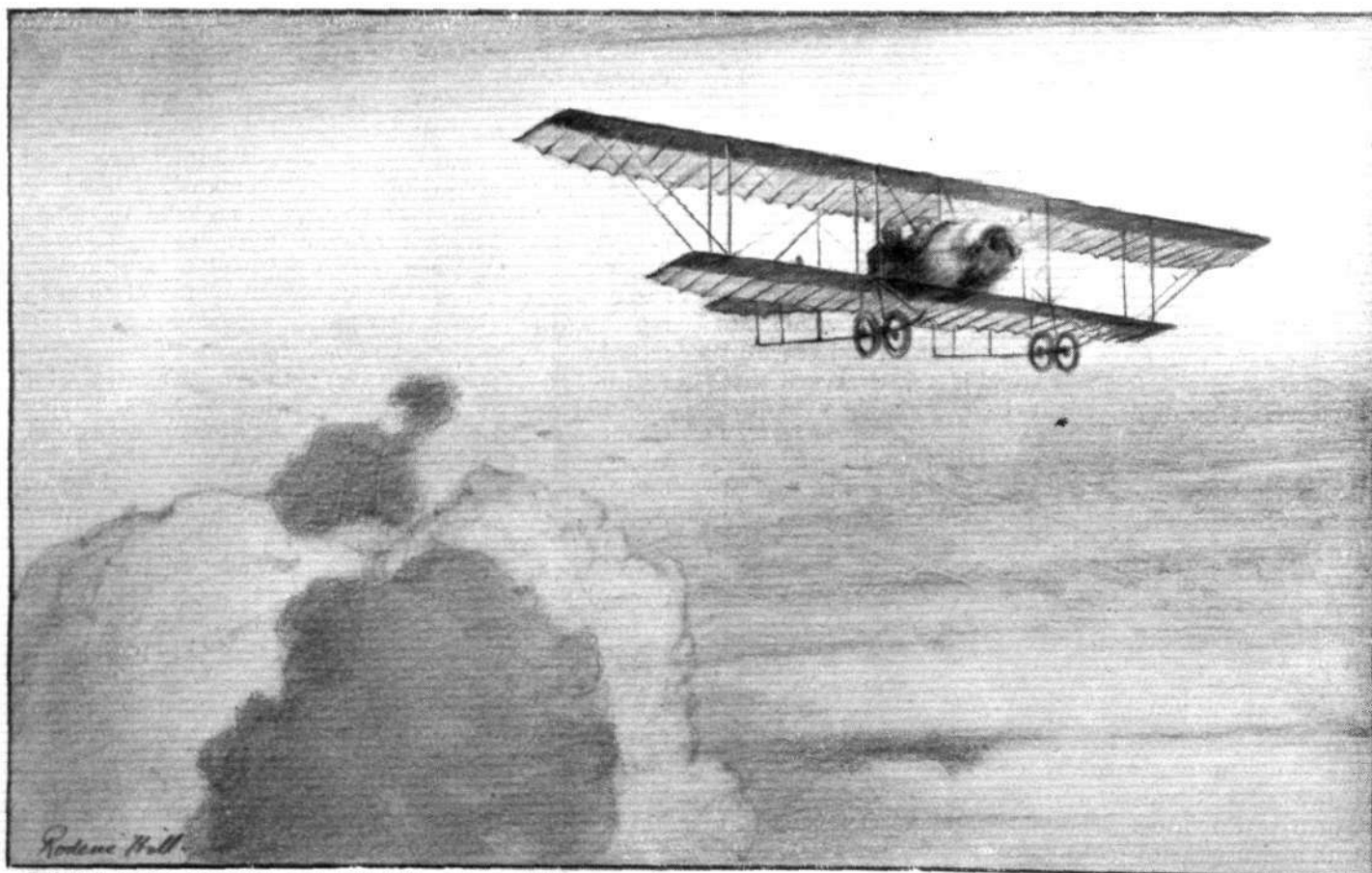
It may be argued that the hypothesis can pre-suppose any conditions to suit the subsequent argument, and this is, truly, a failing of all abstract numerical illustrations. Nevertheless, the fact remains that the hypothetical case might be true; furthermore, the same result might equally happen if the majority numbered 2,000 instead of 200. It would still be possible for a minority of 21 voters entirely to alter the majority vote, and the fact that the influence may be accidental is in our opinion an even more convincing argument against the system than that which takes account of the possibility of securing the same premeditated result through the influence of a clique.

If candidates A, B and C take their chances among other candidates under the proportional system of voting, they will experience the proportional effect of their relative consequence to the members of the society as a whole, and it is therefore perfectly fair to take any figures that one chooses as a basis for their relative positions as the result of such a vote. Moreover, the hypothesis is, we think, equally supported by the condition that prevails under Mr. Ackermann's system, because it might happen—and indeed we would go so far as to say that it should be the case—that candidates A, B and C are known to the majority of the voters, and that they have, therefore, received their votes by the free choice of the electors to whom they are known. A small clique, who have some particular reason for desiring C on the committee, agree to abstain from voting for A and B, and by their minority influence alone they succeed in upsetting the proportional

vote of the majority, who have distinctly recorded in favour of A and B. Thus, Mr. Ackermann's system itself breaks down from this point of view.

We do not necessarily say that the principles involved in Mr. Ackermann's system of voting are necessarily wrong as such, but we do say that those *principles* are fundamentally different to the principles that are ordinarily supposed to govern committee elections, and that they cannot, therefore, be substituted under any pretence that it is merely an alternative *method* of voting. On the contrary, it is, in our opinion, tantamount to a change in the constitution of the society to which it is applied, and while we do not here argue whether the change itself is desirable or otherwise, we do most decidedly contend that it is a change that should be very thoroughly explained to the members, and not one to be accepted off-hand as a matter of detail, like it has been in the Royal Aero Club.

It is, we consider, fundamentally different in principle for the reason that it necessarily creates an entirely different attitude of mind on the part of the voter. The long and short of it, in our opinion, comes to this, that for the sake of being relieved of the trouble of tossing up between Jones and Robinson, with both of whom one is unacquainted, one is under the painful necessity of withdrawing one's support from dear old Brown. It may, as we have said, even be a preferable system of government to give each clique greater potential opportunity of electing its candidate, but the idea is fundamentally new to the voter who is not appreciative of the significance and purpose of "plumping," and as such it should not, we think, be accepted by any society already under government by the older system, without the fullest possible debate.

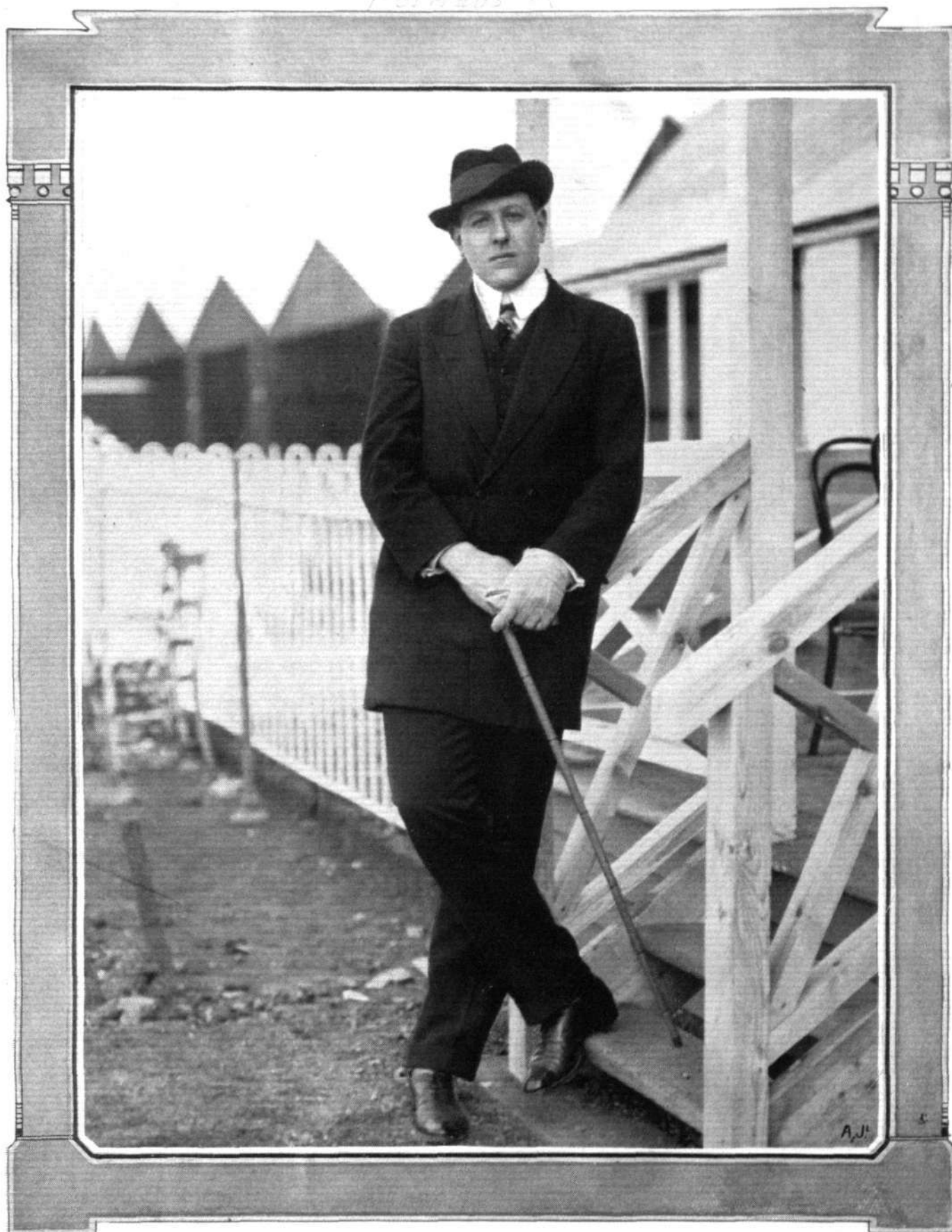


WITH THE ROAR OF 80-H.P.—Lieut. Malone carries a passenger on a Caudron at Hendon Aerodrome. From sketch by Roderic Hill.

MAY 31, 1913.

FLIGHT

MEN OF MOMENT IN THE WORLD OF FLIGHT. Pilot-Designer.



MR. S. F. W. KOOLHOVEN, Works Manager, the British Deperdussin Aeroplane Co., Ltd.



"Flight" Copyright

Gustav Hamel takes Sir Joseph Ward for a flight in the "Britannia" at Hendon after its christening.



"Flight" Copyright.

NAMING THE "BRITANNIA" AT HENDON.—Left to right: Sir Joseph Ward, Gustav Hamel, Lady Desborough, Hon. Thomas Mackenzie, Lord Charles Beresford, and Sir Thomas Coward.

AN INTERESTING CEREMONY AT HENDON.

ON Thursday of last week an interesting and, for this country at any rate, unusual ceremony took place at Hendon, when Lady Desborough christened a Blériot monoplane which the Imperial Air Fleet Committee have presented to the Government of New Zealand. The machine in question is the self-same monoplane with

biplane and gave an exhibition flight lasting about ten minutes. Lord and Lady Desborough arrived at 3.30 p.m. and were received by Sir Joseph Ward (Ex-Premier of New Zealand) and Lady Ward, Miss Ward, the Hon. W. T. Mackenzie (High Commissioner for New Zealand), Miss Mackenzie, Messrs. Claude Grahame-



"Flight" Copyright.

THE RETURN OF DESOUTTER.—Pilots and mechanics waiting inside the gates at Hendon to "rush" the car on the arrival of Desoutter. On the right Mr. Grahame-White introducing Desoutter to Lady Desborough.

which Gustav Hamel made his splendid flight, with Mr. Dupree of the *Standard* as passenger, from Dover to Cologne on April the 17th last. It is a two-seater (tandem) military-type Blériot having an 80-h.p. Gnome engine. Just before the proceedings commenced, Louis Noel ascended on the Grahame-White Maurice Farman

White, R. T. Gates, and N. Chereau (manager of the Blériot Co.). Many other notabilities were present, including Lord Charles Beresford, Sir James Buchanan, Sir Thomas Coward, Capt. Tyrer, &c. Mr. Gustav Hamel pointed out to Lord and Lady Desborough the various features of the monoplane, which looked very smart



"Flight" Co., right

Desoutter inspecting the "Britannia" from the car with his Hendon friends around.—From left to right: L. Noel, Claude Grahame-White, R. T. Gates, Gandillon, and Gustav Hamel.

decorated with the Union Jack and the New Zealand flag. Lady Desborough then named the monoplane "Britannia" by breaking a bottle of champagne which was suspended by a red, white, and blue ribbon from the chassis. The Hon. W. T. Mackenzie returned thanks on behalf of the Government of New Zealand, saying that his people would regard the "Britannia" as a forerunner of extensive developments in inter-Imperial communication, as they in New Zealand had to do more with peace than with war. Sir J. Ward thanked Lady Desborough for performing the ceremony, after which Sir T. Coward presented her ladyship with a duplicate of the pennant which was to accompany the monoplane to New Zealand. Lord Desborough in returning thanks said he hoped that in due course the Committee would be able to present similar gifts to other Dominions, New Zealand being the first to accept an aeroplane from the I.A.F.C. Miss Mackenzie on behalf of New Zealand then presented Lady Desborough with a green-stone brooch.

In the meanwhile intense excitement prevailed amongst the

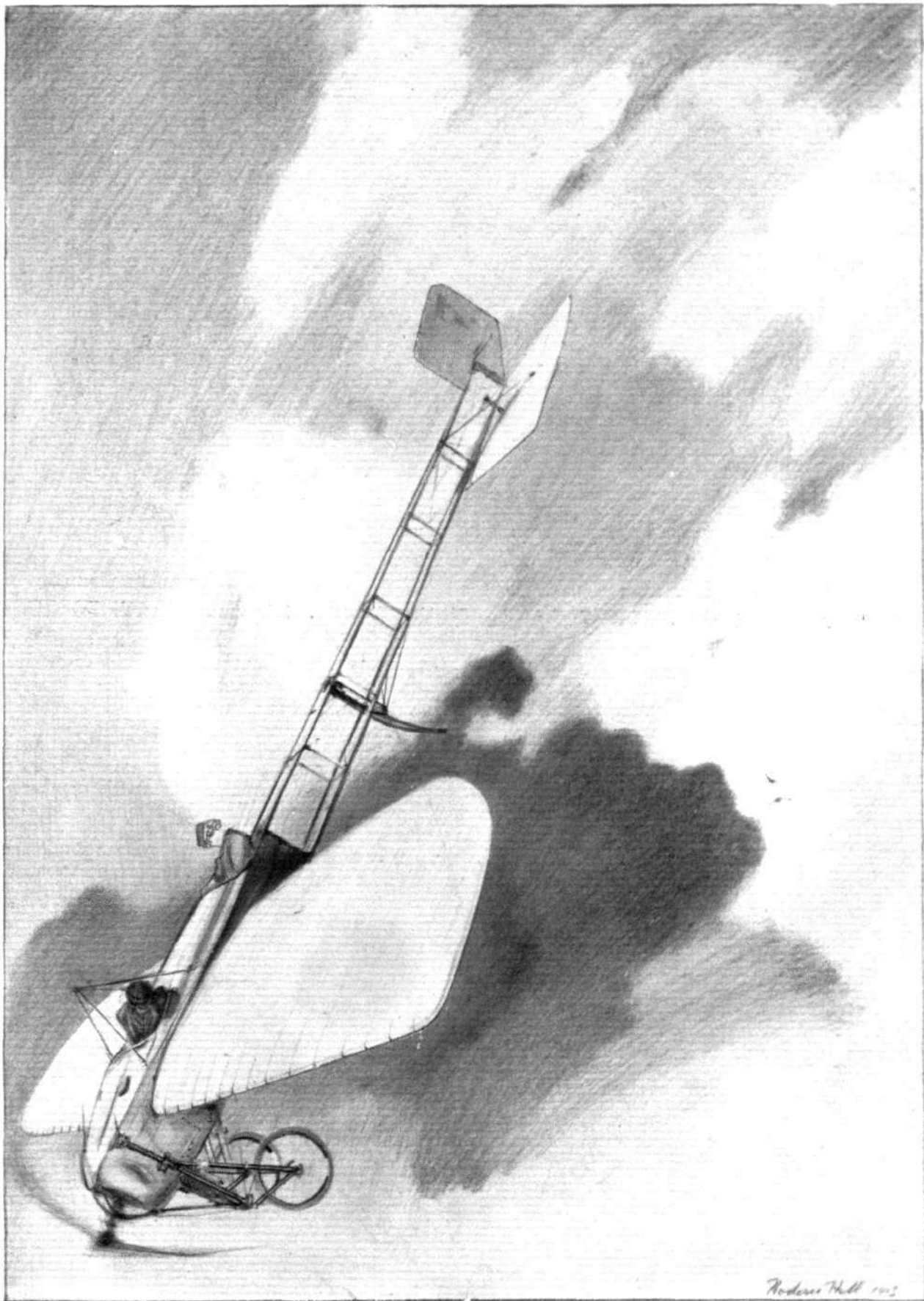
"Hendonites," who sentimentally placed the above important event in a second place, for young Marcel Desoutter was momentarily expected to pay his first visit to the aerodrome since his accident last Easter. Pilots, mechanics, &c., turned out *en masse*, to await him at the entrance. When he did arrive, he got a reception that is not accorded to many; everybody had to climb on to the car and shake him by the hand. He was looking remarkably well too, and was smiling as usual. Then he was driven out to the "Britannia" where he was met by Grahame-White and presented to Lord and Lady Desborough, who congratulated him on his recovery and on his plucky determination to fly again. While all and sundry were paying their respects to Desoutter, Hamel ascended on the "Britannia" with Sir J. Ward as passenger, and made a nice little flight. Noel also took a passenger up in the Maurice Farman biplane, and was followed by Lewis Turner on the 60-h.p. Caudron biplane. Hamel then carried Lord Desborough for a trip, and from thence onwards a succession of exhibition and passenger flights were the order of the day.

EMPIRE DAY MEETING, HENDON.

HENDON aerodrome did not seem to be the same place last Saturday on the occasion of the Empire Day meeting, for many improvements have been effected, and the perfect summer weather gave a finishing touch to the smart appearance the aerodrome now assumes. There was a light westerly breeze blowing, but it did little to alleviate the heat, so that one was inclined to envy the pilots as they got full benefit of the cooler air up aloft. Visitors were well in evidence at an early hour, and by the time the proceedings were in full swing there were fully 15,000 present. In the morning, Lieut. J. R. B. Kennedy, R.N., R.F.C., arrived from Eastchurch on the Admiralty 80-h.p. Sopwith tractor biplane, and Lieut. Gordon Bell flew over from Brooklands on the Martin-Handasyde monoplane, which is fitted with a 120-h.p. Austro-Daimler engine. He landed at about 1 o'clock, having taken 14 mins. for the trip. A little before 3 p.m. Claude Grahame-White ascended on the "G.-W."-Maurice Farman biplane, and executed some evolutions quite in his old style. A little later on he went up again on the same machine, this time with a passenger, and at the same time Gordon Bell made a short flight on the "Martinsyde." There is something about this type of machine—as with the old Antoinettes—that makes for exceptionally beautiful lines when in flight; the Martinsyde is no exception to this rule, and Gordon Bell shows it up to the best advantage. It demonstrated a remarkable turn of speed when taken round the course—well in the neighbourhood of 70 m.p.h. Unfortunately a slight mishap to the chassis on landing after the first flight put the machine out of action for the rest of the afternoon, so that we were unable to judge its racing capabilities in the speed handicap that followed. This event was flown in two heats of six laps each and a final of eight laps. The first heat was made up as follows:—H. M. Brock on the 35-h.p. Anzani-Deperdussin monoplane (2 mins. 2 secs. start); Lewis Turner on the 60-h.p. Anzani-Caudron biplane (58 secs. start); and Pierre Verrier on the 70-h.p. Renault-Maurice Farman biplane (scratch). The latter gave up during the third lap owing to engine trouble, and Turner gained but 44 secs. on Brock, who therefore came in first. Just before the second heat started a balloon was seen approaching over Edgware with a parachutist suspended therefrom, who turned out to be Capt. Penfold, the Australian aeronaut. He let go when about over the Edgware Road and landed just outside the aerodrome, his balloon (quite up-to-date with the weather, as its Cockney legend in bold letters read "O.T.") falling within a few yards of the same a minute or so after. In the meanwhile Lieut. L'Estrange Malone, R.N., R.F.C., was on the Admiralty 80-h.p. Caudron biplane, he remaining up for 20 mins., flying high. The starters in the second heat were Louis Noel on the G.-W.-Maurice Farman biplane (1 min. 38 secs. start); Jules Nardini on his 50-h.p. Deperdussin monoplane (56 secs. start); and Lieut. Porte on the 100-h.p. Dep. (scratch). This heat resulted in a walk over for Nardini, Porte coming in second only $\frac{1}{2}$ sec. in front of Noel. At the finish of this heat, an Army Maurice Farman biplane (No. 224) landed in the aerodrome; it was piloted by Capt. Dawes, R.F.C., and carried a passenger, the starting place being Farnborough. Lieut. Malone again ascended at about the same time on the 80-h.p. Caudron, and after reaching a good height, started off for a cross-country flight, returning to Hendon some two hours after. The final heat of the speed handicap was started shortly before 5 o'clock; Brock, on the 35-h.p. Dep., was the limit man (3 mins. 58 secs. start), then came Turner on the 60-h.p. Caudron (3 mins. 3 secs. start); Nardini started next (39 secs. start), and Lieut. Porte was at scratch. Brock and Turner had completed two laps before Nardini and Porte got away, so it was not very easy to follow their relative positions. However they finished in the same order in which they started, the last three coming in close together.

While the race was in progress, Verrier went up with a passenger, and shortly after Noel also took up a passenger. Then James Valentine, who had been an interested spectator during the afternoon, could not resist the temptation to get going, so he took over Nardini's Dep. and put up 15 minutes of very fine flying. Grahame-White then took up Mrs. Grahame-White on the Maurice Farman, being followed almost immediately after by R. Slack on the 50-h.p. Blériot. Two passenger flights were then made by Verrier; Brock on the 35-h.p. Dep., M. Baumann on the 35-h.p. Caudron, and Turner on the 60-h.p. Caudron being up at the same time. Brock and Baumann remained aloft for 18 and 26 mins. respectively. More passenger work was done by Noel and Verrier, and then G. L. Temple, flying very low on his 35-h.p. Caudron biplane, returned from Park Royal, where he had been giving exhibition flights. He was followed five minutes after by J. L. Hall (on his Blériot), who had also been to Park Royal. Turner took up three more passengers before retiring, and A. Cheeseman and R. T. Gates both gave exhibition flights, the former on the G.-W. 35-h.p. Blériot monoplane, which he flies quite well, and the latter on the G.-W.-Maurice Farman—except for a very short trial the day before, his first attempt on this machine. Gustav Hamel now made his appearance high up, and after descending to a lesser altitude by way of a spiral *vol plané*, he proceeded to execute some switch-backs, &c. He had been away giving exhibition flights also, at Ranelagh. Slack then made another flight on his Blériot. In the meanwhile active preparations were being made with the Nieuport monoplane, late the property of the G.-W. Co., now belonging to the Government, and which had been overhauled at the Grahame-White works. M. Bonnier, the famous French Nieuport pilot, had just arrived from Paris for the purpose of making some final tests before delivering the machine to Farnborough. He made two short flights on it late in the evening. At about 7 o'clock Cheeseman made a short flight on the G.-W. school 'bus, and except for a few more passenger flights, on one occasion Grahame-White taking up Miss Ethel Levey of the London Hippodrome, no more flying was done that day. Marcel Desoutter paid another visit to the aerodrome and watched the flying.

Sunday was even hotter than the previous day, and a large number of visitors turned up, the new tea pavilion and tea tents being very much in demand during the afternoon. The feature of the afternoon was the return of Miss Trehawke Davies, now practically recovered from her car accident of a few weeks back. She ascended in her two-seater Blériot monoplane, which was piloted by Gustav Hamel, and after some pretty flying round about the aerodrome, they left for Brooklands. A good many flights were made during the afternoon, and several passengers were taken up. Louis Noel and Pierre Verrier were very busy all the time on their respective Maurice Farman biplanes. Three Caudron biplanes were out, M. Baumann and G. L. Temple flying the 35-h.p. machines and Lewis Turner the 60-h.p. R. T. Gates and Marcus D. Manton made flights on the G.-W. school 'bus. Monoplane were also well represented. H. M. Brock was on the sturdy little 35-h.p. Deperdussin and Jules Nardini flew his 50-h.p. monoplane of the same make. J. L. Hall and R. Slack put in some fine flying on 50-h.p. Blériots. Gordon Bell did some fast flying on the 120-h.p. "Martinsyde," and E. Whitehouse made a flight on the graceful Handley Page, but a burst tyre brought this latter machine's work to an abrupt conclusion. M. Bonnier was out again on the Nieuport, eventually flying over to Farnborough and delivering it to the Government. Mrs. Ian Bullough (Miss Lily Elsie), after being an interested spectator of the flying for some time, indulged in a flight, just to see what it was like.



Spiral vol plane by Hamel on 80-h.p. Blériot, with Miss Trehawke Davies as passenger, May 3rd, on his return from a flight to Windsor, reaching an altitude of 7,000 ft. From a sketch by Roderic Hill.

THE "TONG-MEI" 40-H.P. BIPLANE.

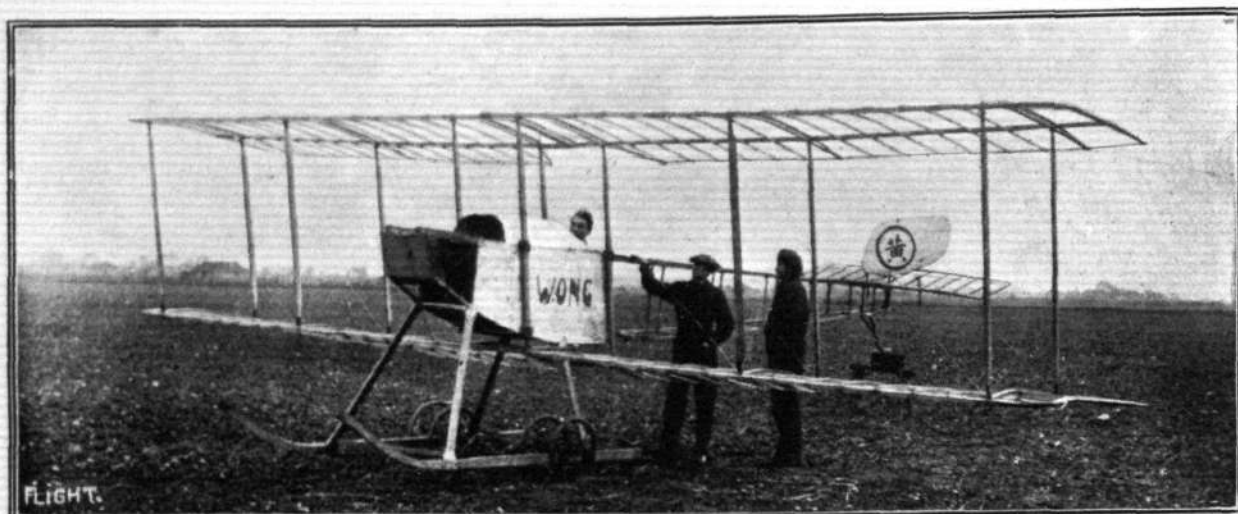
By A.E.G.

THE "Tong-mei" tractor biplane, which is now being tested at the Shoreham aerodrome, is a good example of the light single-seater aeroplane, and is somewhat reminiscent of the BE 3—the highly-staggered planes, deep fuselage and simple landing gear giving this impression.

The plane outline is not common in this country, the

The outline of the *empennage* gives a graceful effect, quite in harmony with the rest of the machine. The almost semicircular tail has a slightly cambered top surface. The 7-ft. 4-in. elevator is built in one piece to give high efficiency, and for a measure of safety should one control cable fail.

A detail feature of the control masts is the cable



THE "TONG-MEI" TRACTOR BIPLANE, MINUS FABRIC, IN COURSE OF ERECTION.—
Mr. Wong in pilot's seat.

trailing-edge being swept back slightly from the second rear strut to the extreme wing-tip, the idea being to gain increased warp efficiency.

A simple and neat hinge is fitted to the rear spar, to lessen fatigue.

The planes are mounted on twelve silver spruce silk-bound struts, shaped to the "Baby" section, as recommended by the National Physical Laboratory.

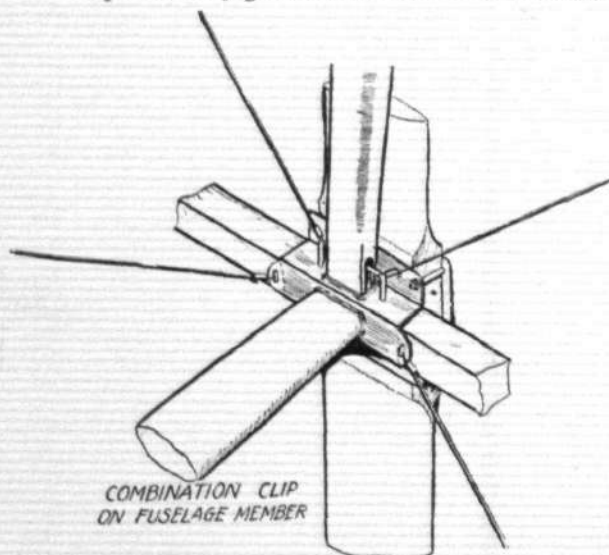
A particularly good feature is the rib construction, each

fixing, designed to retain the cable in case of failure of the bolt or its fastening.

The balanced rudder is mounted on a wood-filled steel mast, which, extended through the body, forms the support of a pivoted tail skid, in BE 3 fashion.

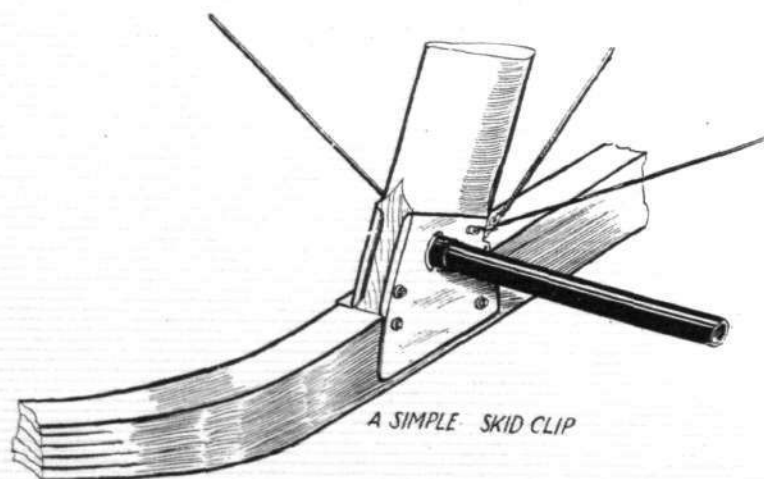
The landing chassis is essentially simple, being designed for use in a country where skilled assistance is difficult to obtain, each member could be replaced by almost any material that came to hand.

The steel clips fastening the struts to fuselage and skids are very simple, but at the same time strong pieces of platework.



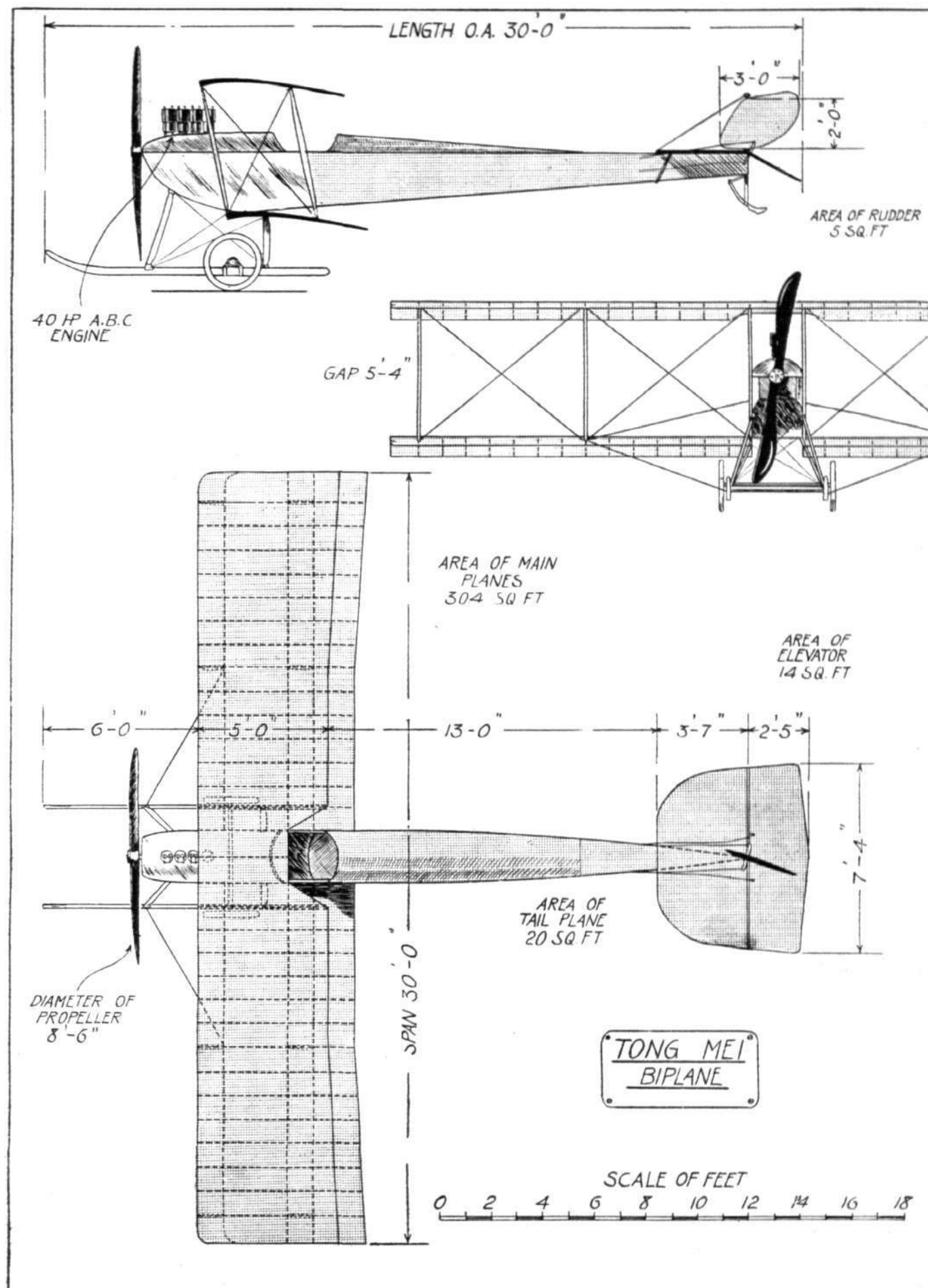
rib is built up of three laminations of spruce layered together with glue and rivets on a former, the resulting curve being absolutely permanent, and the finished rib is a great deal stronger than one of the ordinary type.

The trailing edge of the upper plane is cut away, above the body, to lessen down draught on the tail.



The comfort of the pilot has been carefully studied and he is well sheltered behind an aluminium turtle deck, which also streamlines the petrol and oil tanks. Light wood formers carry a lath and fabric combination of the streamline form behind the pilot.

The central lever utilized is practically a modified

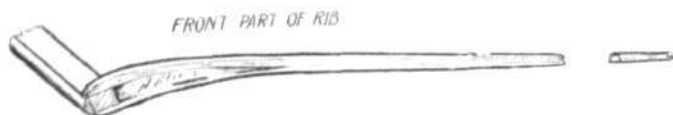


THE "TONG-MEI" TRACTOR BIPLANE.—Plan, side and front elevations to scale.

form of the Blériot *cloche*, but the substitution of arms saves some unnecessary weight.

Any organ or part can be very quickly dissembled entirely as a unit, a virtue which will be appreciated by those who have faced the difficulties of transport and travel without proper facilities.

The complete machine, less engine and fabric, weighs only 504 lbs., and with 3½ hours' petrol will fly with a loading of 2½ lbs. per foot.



The engine to be installed is one of the new 40-h.p. A.B.C., the English duration record holder. The combination should be capable of some good performances.

Mr. Tsoe. K. Wong, the designer and constructor of the Tong-mei (English "Dragon Fly"), intends to introduce the type into China, where he hopes it will play its part in the development of China's fourth arm. It is

AIR SERVICE.

By "MAJOR," R.A., retired.

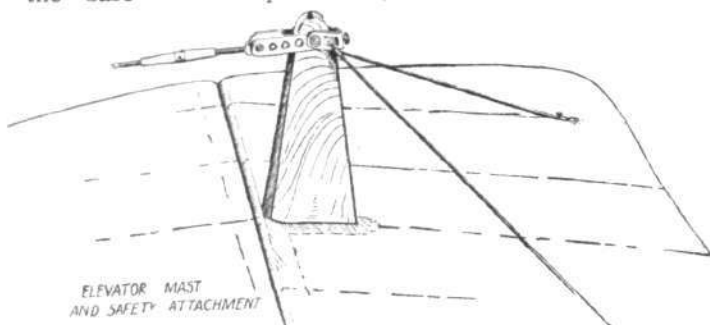
THE insistent demand for proper development of the air services, now made by thoughtful people at large, is quite sound, though in most cases instinctive, for few realise that in a few decades, or possibly years, the super-Dreadnought will be unable to keep the sea, and the communications of the Empire will depend on air vessels supplemented by small swift cruisers.

The effective range of the modern torpedo against a large target is definitely greater than the effective range of the gun, and soon torpedoes will be launched from hydroplanes—two thousand of which can be built for the price of a Dreadnought—so quick and so small that gun-fire will have no chance of dealing with them. Besides this, attack from overhead will soon be formidable enough by itself. What would be the effect of a drum of petrol weighing half a ton, or possibly much more, dropped by a dirigible on the deck of a battleship? Annihilation, surely.

The ineptitude of the party hack has never been shown more dangerously than in the failure of the Government of the present day to realise the absolute necessity of attaining, and keeping, the foremost place in the air, not only for maintaining supremacy in the North Sea, which is a factor of our existence, but also for protecting our colonies and the Empire generally against foreign attack and internal convulsions.

It may be thought that one is looking too far forward in foreseeing the total disappearance of the Dreadnought; but it must be obvious that in quite the near future the defence of a distant part of the Empire, like Australia—which is now practically isolated, and at the mercy of the Japanese, since the concentration of our naval power round our own shores—could be, and, indeed, must be, undertaken largely by air vessels. How else can a few millions of whites scattered round the fringe of a continent meet an oversea attack, taking into consideration the enormous distances to be covered? Indeed, for an Empire of vast spaces like ours, air

encouraging to note that Mr. Wong has made England the base for his preliminary organisation. He is



arranging to take back several English pilots and mechanics.

FLIGHT readers will no doubt wish him every success in his enterprise.

A two-seater machine of the same type is now in course of construction, and will, as soon as it is completed and tested, be dispatched to China.

defence, in its probable development, is a godsend, cheaper and more effective than either sea or land forces, and the failure to grasp this fact, and stretch out both hands for "the food the gods provide," gives a melancholy side-light on the decadence of the militancy of the Anglo-Saxon race, on which Homer Lea is so eloquent. America is more contemptibly behind-hand than we are ourselves—worse treated even than ourselves by the professional politician.

As things are now, it would be possible to organise, at little more than the cost of a regiment of cavalry, an air service in South Africa that would go far to render native risings on a small scale impossible, and add immensely to the security of scattered whites. There, as in so many other parts of the Empire, it would go far towards restoring the prestige we have been throwing away for many years if an effective air service, from the secrets of which the natives were rigidly excluded, were established.

Russia, unlike ourselves, recognises the force of these considerations, and is acquiring airships and aeroplanes, and training pilots in a way worthy of a great Empire. If she should strike at India when England is ruled by such a Government as the present one, there can be but one result.

But the spirit of the country, drugged as it is by a century of ease and security, must rouse before long and insist that the necessary steps are taken to safeguard our rights and interests. It was the feeling of the country that insisted on the retention of Gibraltar at the close of the War of American Independence, and the politicians had to give in, and, *pace* Homer Lea, England is not yet past making sacrifices to maintain the Empire our fathers have bequeathed us. The uncomplaining, modestly heroic spirit in which life is sacrificed almost daily shows that we have the right men still, and that our air service may be made second to none.

The Scottish Aeronautical Society.

DURING last summer, several public displays were given in Scotland by aviators engaged by committees organising gymkhanas, public demonstrations, &c., and there is every likelihood of several requests being made to aviators for such displays this year. Owing to the natural formation of the ground in Scotland, it is seldom that a suitable aerodrome can be found near the large towns, and in many cases committees, being unaware of the requirements of the aeroplane, are inclined to endeavour to arrange displays in ground which is quite unsuitable. The above Society is taking up this question, and has issued information to the general public that they are prepared to render assistance in the arrangement of demonstrations, and in particular to report on the suitability of ground for such. This will, in all probability, prevent disappointment, and make these displays safer for the aviator and general public. There have been cases where the aviator on arriving in the north, and finding the ground unsuitable, has accepted considerable risks in order to prevent disappointing the public who had assembled to witness the

proposed flights. The Society will be glad to assist all aviators coming north in the matter of suitable landing-grounds near the large towns, nearest repairers, petrol stores, &c., and any information required can be obtained from the Honorary Secretary, J. Allison, Jr., C.A., 133, St. Vincent Street, Glasgow.

Aeronautics in Newcastle.

UPWARDS of two months ago, the Council of North-East Coast Institution of Engineers and Shipbuilders decided, after much deliberation, to form an Aeronautical Committee, it being considered that the study of aeronautics might advantageously be coupled with that of engineering and shipbuilding. At the same time negotiations were engaged upon with the North-Eastern Aero Club, with the result that this body has now become absorbed in the Institution. The committee is largely representative of the club that was, and the Hon. Sir Charles A. Parsons is the chairman. The objects of this committee among others will be to arrange meetings for the discussion of aeronautical questions, and generally to promote the study of such among the members of the Institution.

ARMCHAIR REFLECTIONS.

By THE DREAMER.

Suburbia—Eightpence a Mile.

If any readers happen to be in want of a situation, they might do worse than keep an eye on the advertisement columns of this paper, as in all probability I shall soon want a man to replace my censor. I, of course, have a person to look through my letters before they are brought up to me, and I am afraid my man is not up to his work. It is quite a simple job. All he has to do is to open the letters and extract anything that is not good for me to receive (including bombs), and send the residue up to me, and he has sent me up the following: "Dear Sir,—Suburbia—Eightpence a mile. Dream of that. Constant Reader."

Now I do not remember that I have ever invited my readers to come to grips with me, but I am nothing if not a fighter, so here's at you.

I am not at all certain in my own mind just what the point is with "Constant Reader." Are "Suburbia" and "Eightpence a mile" two separate subjects on which he wishes to tackle me (though why, goodness only knows), or are the two combined? because it has just dawned on me (his letter is so delightfully indefinite) that perhaps it is a deadly insult to me, and that my censor knew what he meant too, prompted by my attempts to amuse him, he wishes to convey that I live in Suburbia and write at Eightpence a mile, which he evidently thinks fair value for money.

Well, yes, I am a suburbanite—and respectable. At one time, many years ago, I was not respectable—I lived in Chelsea. I do not wish you to understand that I lived in Chelsea because I was not respectable, or that I was not respectable because I lived in Chelsea; it is simply that the two things happened together. I lived in a studio (half Chelsea lives in a studio), and had my bed on the top of the wooden arrangement that formed a portico to the door; it had curtains around it, and was quite comfortable, and I used to go to bed up a ladder. It had its advantages, because I used to go to bed when there was a strange knock, and pull up the ladder whilst my boy answered the door.

I remember that in those days I lived principally on cigarettes and credit, and one had to take precautions. I used to think I was an artist, and bohemian; I have since come to the conclusion that I was a fool, and beastly untidy. "And then," as Rider Haggard would say, "a strange thing happened," I moved to suburbia, and became respectable. I want you to take keen notice that I did not become respectable and move to suburbia, I moved to suburbia and became respectable—and married. Everybody who lives in suburbia is married, except children and servants. Nowadays when a man is single, he lives unattached in Bloomsbury. When he is married they live semi-detached in suburbia.

I live in suburbia, but I am going to move, it is too horribly ultra hypercritically respectable for me, and so I am coming back to dear old London, and "Corner Houses," and "Populars" and "Gatti's," yes, and even "Eightpence a mile" and "Come Over Heres."

Suburbia is all very well for the newly married, but as one draws on in years its respectability becomes deadly.

Sunday, at 10.35 a.m., is when suburbia really and thoroughly lays itself out to show what it can do in the shape of respectability. Precisely at that moment, every

little semi-detached door in that how-dare-you-breathe-on-a-Sunday street opens, and out step Mr. and Mrs. Goodeyrot. I know the procedure only too well. The lady steps out first, takes four stately steps down the two-by-one chess-board path into the street, turns at right angles as though on a pivot, and waits whilst hubby closes the door. Hubby then takes three quick steps and is beside the partner of his misery, where he pulls up short and hurriedly gets into line, and away they sail, majestic and slow, each with a book held out in front like a pair of head-lamps on a car. It is just about this time that I am wrestling with the refractory nuts that are supposed to so quickly fix a side-car to my motor-bike, and saying things quietly but forcibly about the builder who put up these "desirable properties" with a side gate not wide enough for the wind to blow through. I know I am on the road to—the naughty place, going motoring and visiting aerodromes on a Sunday. I can read my fate in the pitying looks they cast on me as they pass, at least the man (I beg his pardon, gentleman) does, the lady sails on with chin high in the air. To her, I am a lost soul. At intervals of twenty feet, the whole length of the street, come these couples, each as they pass contributing their share to what they fondly imagine is my discomfiture. The builder has offered me a price for the few remaining years of my lease, and, if he only knew it, I am pleased to take it. He says the owner wants to come and live there himself, if possible; but I believe the whole of the street have petitioned the landlord to get me out, and have probably subscribed the money to buy me off.

Hendon Really is "IT"!

I often wonder if any of the vast crowd that visits Hendon ever stop to think that they are, in all probability, at the only place of its kind in the world? Aviation has so quickly and so subtly crept upon us that we are likely to wake with somewhat of a shock of surprise. A few short months ago, and the London Aerodrome was a wilderness—a learning ground. Nobody, except those who were pupils, or connected in some way or other with the business side of aviation, ever went there, and now, what is it? A resort of fashion—a veritable "Ascot" in London—a splendid health-giving—interesting—pleasurable—worry-forgetting rendezvous, with everything that can possibly be thought of for the comfort of visitors, done or doing. And the world of fashion in London has received it with open arms.

With such a large place, it is something of an undertaking to put one's "house in order." So much can be done with very little to show in return; therefore all the more credit to the powers that be. Splendid and comfortable tea pavilions—little striped red-and-white garden tents scattered about, each with its wooden floor, and its dainty tea service prettily and invitingly set out. Plenty of walking space, where one can promenade, if so minded, thousands of comfortable chairs—arm and otherwise—for the weary, and plenty of fine flying. Music, fashion, sport, interest, comfort, fresh air—what more can one want? Truly, on a sunny Sunday afternoon Hendon is a sight for the gods, and bids fair to be handed down to posterity side by side with Boulter's and Hyde Park.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Committee Meeting.

A MEETING of the Committee was held on Tuesday, the 27th inst., when there were present: Col. H. C. L. Holden, C.B., F.R.S. (in the Chair), Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Mr. G. B. Cockburn, Prof. A. K. Huntington, Mr. J. T. C. Moore-Brabazon, Mr. Mervyn O'Gorman, Mr. C. F. Pollock, Com. C. R. Samson, R.N., Mr. T. Sopwith, Mr. R. W. Wallace, K.C., and the Secretary.

Aviators' Certificates.—The following Aviators' Certificates were granted:—

No.	Date.	
485	May 19, 1913	René Louis Desoutter (Blériot Monoplane, Blériot School, Hendon).
486	May 20, 1913	Lieut. Greville Edward Gordon McClellan (Worcestershire Regt.) (Bristol Biplane, Bristol School, Brooklands).
487	May 22, 1913	Manuel Zubiaga (Caudron Biplane, Ewen School, Hendon). Subject to permission of the Aero Club of Spain.
488	May 22, 1913	Toné Hippolyte Bayetto (Blériot Monoplane, Blériot School, Hendon).
489	May 23, 1913	Shipwright Charles Victor Lacey, R.N. (Bristol Biplane, Royal Naval Aviation School, Eastchurch).
490	May 24, 1913	Staff-Surgeon Hardy Vesey Wells, R.N. (Bristol Biplane, Royal Naval Aviation School, Eastchurch).
491	May 24, 1913	Richard Orr Paterson (Vickers Biplane, Vickers School, Brooklands).
492	May 26, 1913	Lieut. Paul Augustine Broder (5th Worcester-shire Regt.) (Bristol Biplane, Bristol School, Brooklands).

The following aviators' certificates, taken in France, were approved:—

George Leith, Frederic Leith, and Lieut. A. Loftus Bryan.

Aerial Derby.—The course for the Aerial Derby, which starts from Hendon on Saturday, June 7th, 1913, was approved.

Public Safety and Accidents Investigation Committee.—On the motion of Col. H. C. L. Holden the following report was unanimously adopted:—

REPORT ON THE FATAL ACCIDENT TO LIEUT. L. C. ROGERS-HARRISON WHEN FLYING AT FARNBOROUGH, ON MONDAY, APRIL 28TH, 1913, AT ABOUT 6.20 A.M.

Brief Description of the Accident.—Lieut. L. C. Rogers-Harrison, flying a Cody Biplane, fitted with a 120-h.p. Austrian Daimler motor, on Monday, April 28th, 1913, at about 6 a.m., left the Flying Ground at Farnborough for an ordinary practice flight. After being in the air for about twenty minutes, during which time he had made a complete circuit in the neighbourhood of the Flying Ground and had attained a height of about 1,200 ft., he was observed to be coming down, as if to alight up wind, in accordance with orders, on the Flying Ground. At about 500 ft. the aircraft was observed to be descending more steeply. The aircraft collapsed, and fell to the ground, killing the aviator instantly. The aircraft was completely wrecked and several parts were picked up in adjacent fields.

Lieut. L. C. Rogers-Harrison was granted his Aviator's Certificate No. 205, on April 16th, 1912, by the Royal Aero Club.

Report.—The representatives of the Accidents Committee went to Farnborough and visited the scene of the accident within a few hours of its occurrence, and took evidence from the eye-witnesses.

The Committee sat on Monday, May 5th, 1913, and on Monday, May 19th, 1913, and received the report of the Club's representatives who were on the spot within a few hours of the occurrence. This report included the evidence of eye-witnesses. Mr. S. F. Cody, the designer and manufacturer of the aircraft, attended and gave evidence on various points raised by the Committee.

From the consideration of the evidence, the Committee regards the following facts as clearly established:—

(1) The aircraft was built in June, 1911, and took part in the Military Aeroplane Trials in August last, winning the first prize of £5,000, and was subsequently purchased by the War Department without any further tests.

(2) Since that time certain alterations had been made to it:—

All the wiring of the wings had been renewed on the occasion of the altering of the dihedral angle from the negative to the

positive, which was done within about three weeks of the accident.

The aircraft was subsequently tested in flight by Mr. S. F. Cody on several occasions shortly before the accident.

(3) The elevator had not been re-covered since July, 1911.

(4) At the time of the accident the wind was about 10 to 12 m.p.h. on the ground and was somewhat gusty.

(5) The aircraft at the time of the accident was descending at an angle which was not unusually steep. The evidence is inconclusive as to whether the engine was throttled down.

(6) When about 500 ft. from the ground the elevator and wings failed and the aircraft fell to the ground. Pieces of the elevator, wing fabric and struts were picked up some distance from the place where the aircraft fell and in such a position that they must have fallen from the aircraft whilst still in the air.

(7) The fabric with which the wings and elevator were covered was weak.

(8) The elevator was a pivoted one, the pivot being approximately a third of its width measured from the leading edge, and coincident with the axis of the front spar.

Opinion.—The Committee is of opinion that the aircraft had structurally deteriorated from one cause or another since it was originally built in 1911, and that its condition at the time of the flight was precarious.

The elevator was not designed with a view to the withstanding of top-pressure, and the appearance of the fractures indicates that it failed from this cause. Mr. S. F. Cody's opinion as to the failure of the elevator coincides with that of the Committee.

Recommendation.—In view of the fact that aircraft are built of perishable materials, the Committee strongly recommends that those which have been in existence for some time, whether they have been in use or not, should undergo a critical examination both as regards their framework and the fabric, with a view to ascertaining to what extent deterioration has taken place, and the condition of the aircraft generally recorded at the time.

The failure of the elevator in this case points to the necessity for making any such part adequate to withstand top-pressure. Moreover, the re-action on the pilot from the elevator must always be within the pilot's easy control.

Balloon Race at Hurlingham.

The "Hare and Hounds" Balloon Race will take place to-day, at the Hurlingham Club, Fulham, S.W., at 3.30 p.m., for a cup presented by Mr. John D. Dunville.

Members will be admitted free to the Hurlingham Club on presentation of their Royal Aero Club membership cards.

The following members will take part:—

Hare—

Banshee (80,000 c.f.) ... Mr. John D. Dunville (Pilot).

Hounds—

(1) Chili (50,000 c.f.) .. Mr. F. K. McClean (Pilot), Mr. Alec Ogilvie.

(2) Polo (50,000 c.f.) ... Mr. A. Mortimer Singer (Pilot), Mr. C. F. Pollock.

(3) Meteor (50,000 c.f.)... Mr. L. H. Mander (Pilot), Mr. Jack Soames.

(4) Dunlop (50,000 c.f.)... Mr. James Radley (Pilot), Sir Claude Champion de Crespigny, Bart.

(5) R.F.C. (95,000 c.f.) .. Major E. M. Maitland (Pilot), Major G. Raleigh, Capt. R. Pigot, Capt. W. S. Brancker, Mr. T. G. Hetherington, Mr. B. H. Barrington Kennett, Mr. R. Hargreaves, Mr. J. T. Davison.

(6) Zeta (27,000 c.f.) .. Capt. Hon. Claud Brabazon (Pilot), Mr. R. R. Smith Barry.

Fatal Accident at Montrose.

The news of the fatal accident to Lieut. Desmond Arthur at Montrose on Tuesday last was received with much regret at the Club, where he was a regular visitor.

Representatives of the Accidents Committee, (Mr. W. O. Manning and Mr. H. E. Perrin) immediately proceeded to Montrose to examine the wrecked aircraft and collect evidence for the Club's enquiry.

166, Piccadilly, W.

HAROLD E. PERRIN, Secretary.

FROM THE BRITISH FLYING GROUNDS.

Brooklands Aerodrome.

Thursday, last week, Mr. Ronald Kemp visited Brooklands with a passenger on No. 449 B.E. (Bristol made) biplane.

On Friday, Mr. Hamel flew over and gave one of his exhibitions before a cinematograph operator, who had several anxious moments when Mr. Hamel executed some particularly daring manoeuvres within a few inches of him. Mr. Gordon Bell was flying at the same time on the new Martin-Handasyde monoplane, the two aviators afterwards leaving for Ranelagh together, Mr. Gordon Bell (owing to the superior speed of his machine) circling round Mr. Hamel three times *en route* so as to arrive at the same time, and after doing one circuit at Ranelagh, Mr. Bell returned to Brooklands without landing. The two machines presented a very pretty spectacle in the air together in the capable hands of such experienced pilots. Mr. Gordon Bell flew over to Hendon on the new Martin-Handasyde monoplane.

Mr. Spencer was the first out on his biplane, Saturday, flying at first alone, and afterwards with passengers on his 50-h.p. Gnome-engined biplane. Mr. Knight was next out to test the air conditions for pupils, and was followed by Mr. Barnwell, who took up the winner of the previous Sunday's ballot for free flight—Mr. A. P. Mead, of St. Mary's, Teddington; after which several Vickers pupils made solo flights, one of whom, Mr. Richard Orr Paterson, carried through his *brevet* tests in brilliant style on the Vickers-Farman biplane, the second half being flown at an average height of 600 ft. (highest, 700 ft.), the landing being effected within 25 ft. of the mark, after several excellent banked turns—a performance creditable alike to himself and to his instructors, Messrs. Barnwell and Knight. Mr. Merriam and Mr. Bendall, of the Bristol School, were both very busy with their pupils, the former finishing up with a fine spiral descent with engine cut off.

The perfect weather conditions, Sunday, attracted the largest crowd of the year. Mr. Spencer was the first out, on his biplane, and then Mr. Hamel came over from Hendon with Miss Trehawke Davies (still feeling the effects of the motor car smash in which she was recently involved), and gave several wonderful displays, thrilling the spectators time after time by the evolutions which he carried out. Mr. Hamel afterwards returned to Hendon with Miss Davies. Before breakfast Mr. Merriam flew *via* Shepperton and Walton to the outskirts of Staines and back. Mr. Merriam's final spiral descents have become a feature, and the people quite look forward to seeing them. Both he and Mr. Bendall was again very busy with their many pupils. Mr. Knight was first out from the Vickers School, and was soon followed by all the pupils. Mr. Gordon Bell well rewarded the patience of his many friends who had awaited his return from Hendon with a lady passenger on the new Martin-Handasyde monoplane, by the masterly flying exhibition which he gave, his machine responding to the slightest touch, and climbing and turning with equal facility. No one coming forward to claim the free flight after the first draw, a second one took place, the winner being Mrs. Anderson, of Broxton, Ottershaw, who was taken up by Mr. Knight on the Vickers-Farman biplane.

For the Bomb-Dropping and Alighting Competition (pupils only), the following from the Vickers School competed: Messrs. Blatherwick, Waterfall, Mitchell, Andreae, and Orr Paterson, and universal surprise was caused by their excellent performances. Mr. Orr Paterson (who only passed his *brevet* tests the previous evening), was first, dropping his bomb within 24 ft. of the mark and alighting within 30 ft., Mr. Andreae being second, having dropped his bomb within 21 ft. and alighted within 48 ft. of the mark. Each competitor had to make one circuit, dropping his bomb from 100 ft., and then continuing for another circuit and shutting off his engine at the same height. This is a wonderful performance, when it is considered that it was accomplished by pupils who have been flying quite a short time. The mark used for the bomb-dropping competition was a sheet, only 5 ft. square.

Bristol School.—Bendall out for test on Monday last week, Merriam on another machine; the latter then up behind Lieut. Morgan on several straights, afterwards giving Mr. Bernard Howard (new pupil) a good long high flight to start with. Lieut. Duncan making very good circuits and landings, Lieut. Broder following with figures of eight in fine style; Lieut. Ed. McClellan also made a good solo. Bendall finished with a solo, conditions being too bad for further pupils' work. Merriam for test, then giving tuition to Mr. Bernard Howard. Bendall instructing Mr. Grahame Harris. Merriam finished with a solo as it was getting dark.

Merriam first out for test on Tuesday, it being an ideal flying morning, afterwards up with Mr. Bernard Howard and Mr. Grahame Harris, and behind Lieut. Morgan, giving him quite a lot of tuition. Lieuts. Broder, Duncan, and Ed. McClellan, capital solos with figures of eight, &c. Merriam sat behind Lieut. Duncan on figures of eight, showing him banked turns. After, all pupils

having another turn each. Flying been abandoned until after breakfast. Merriam was testing twice later, and then sent Lieut. Ed. McClellan away for the other half of his *brevet*, which he accomplished exceedingly well. Bendall made a circuit, but rain came on. Too windy in the afternoon and evening for flying.

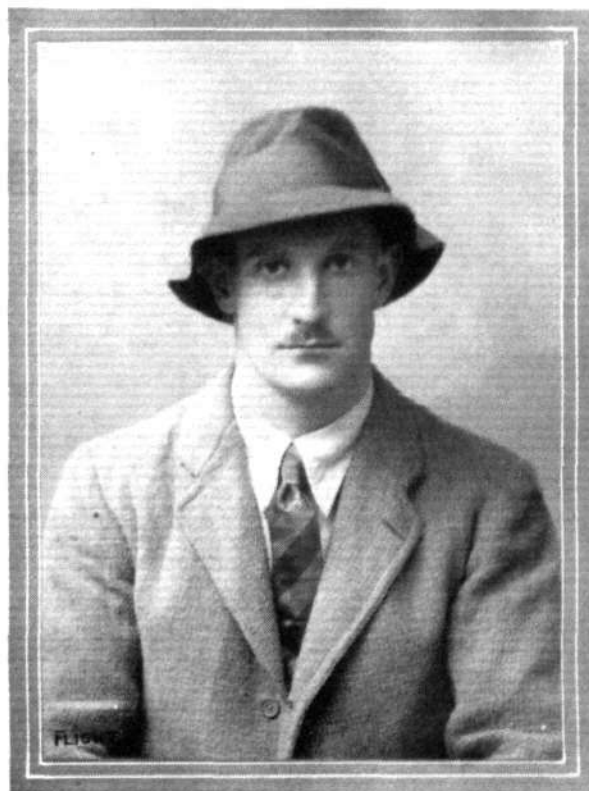
Wind blowing a gale all day on Wednesday.

On Thursday too windy in the morning for flying. Wind dropped later and Merriam for test, afterwards up with Lieut. Noott, Capt. Wilson (new pupil), Messrs. Bernard Howard and Powell (last named a new pupil). Bendall behind Mr. Grahame Harris on straights. Afterwards making a test, also testing engine on another machine; the wind got up and stopped further work.

Rain ceased at 4 a.m. on Friday, Merriam then for test and found a bit bumpy. Afterwards up with Capt. Wilson, this pupil being good on controls, gave him some straight flights (sitting behind), then up with Lieut. Noott, who is also making rapid progress. Later up with Mr. Richard Powell on circuits, and behind Lieut. Morgan on several straights, this pupil gaining quite a lot on experience in a choppy wind. Merriam took Lieut. Noott up to a good height to finish the morning's work, as it was too bumpy for further flying. Merriam out for test with Mr. Richard Powell as passenger, and found very bumpy. Later Bendall taking Lieut. Noott as passenger, but found it bad. Merriam later tried again with Capt. Wilson as passenger, but still no good. Darkness prevented further flying.

Merriam was first out on Saturday, before any of the pupils arrived, Lieut. Duncan being the first, taking Merriam as passenger on a figure of eight as he is rather bad on right-hand turns. This pupil afterwards made good right and left hand turns. Bendall up twice with Lieut. Noott, Mr. Richard Powell, and Mr. Grahame Harris and Capt. Wilson, Merriam sitting behind the latter on several straights, also later with Mr. Grahame Harris on a good number of straights. Afterwards giving tuition to Lieut. Noott, and to finish up the morning's work took him to over 1,200 ft. with a spiral descent. Bendall finished also with a high flight. Bendall test with Mr. Bernard Howard, afterwards up behind Capt. Wilson. Merriam for solo then with Mr. Grahame Harris and up with Capt. Wilson. Bendall finished by taking Lieut. Noott. Lieut. Duncan previously made two solos.

Martin-Handasyde School.—Thursday last week, Gordon Bell on the Martinsyde monoplane out for 1½ hrs., taking as passengers F. G. Andreae, Lieut. Blatherwick, and W. E. de B. Whittaker.



Lieut. W. G. S. Mitchell who took his ticket on a biplane at the Vickers School, making a good show at a height of 400 ft. with good *vol plane* in spite of fog in the first half and wind in the second.



Lieut. M. R. Chidson, R.G.A., one of the recent Bristol pupils at Lark Hill to secure his R.Ae.C. certificate.

After several circuits round the aerodrome on Friday, Gordon Bell on the Martinsyde accompanied Hamel to Ranelagh with F. G. Andreae as passenger, circling the polo ground several times before returning—without alighting, to Brooklands—the entire journey occupying 25 mins. He then took Lieut. Harford for a 10 mins. flight.

Gordon Bell, with Mr. Frost, foreman of Martin-Handasyde works, left for Hendon Saturday, arriving there in 14 mins. On landing, after making a circuit of the ground, it was discovered that the sliding sleeve of the undercarriage was cracked, and it was deemed advisable to withdraw the machine. Sunday, a fresh sleeve having been fitted, several flights were made, and in the evening Gordon Bell returned to Brooklands with Miss Weekly as passenger, and later gave a magnificent exhibition of flying, to the delight of the many spectators who had remained to see the machine return.

Vickers School.—Early Monday morning last week, Knight on biplane with Mr. Beevor, then Mr. Beevor in front seat with Knight behind for straights and circuits. Mr. Waterfall on No. 5 mono., doing very good cross-country flight at about 4,000 ft. Mr. Orr Paterson figures of eight on biplane. Knight testing new biplane with 70-h.p. Gnome. Mr. Wight, circuits at 1,100 ft. Capt. Wood, on biplane, circuits, then Knight, with Mr. Beevor in passenger's seat. Mr. Mitchell, on No. 3 mono., doing excellent straights for about 30 mins. Knight, on biplane with passenger. Mr. Andreae doing very good straights on No. 5 mono. In the evening Barnwell on biplane solo, then with passenger; Knight testing No. 3 mono. afterwards handing over to Mr. Mitchell, who did some very good straights. Mr. Andreae, and afterwards Mr. Mitchell, more straights on No. 3 mono. Mr. Orr Paterson solo circuits on biplane. Mr. Beevor on biplane for circuits, with Mr. Waterfall in passenger seat. Knight, first with Mr. Knight (pupil) for circuits on biplane, then with Mr. Beevor. Mr. Orr Paterson then did some more circuits on biplane at good height. Mr. Barnwell, testing new biplane with 70-h.p. Gnome, solo, then with passenger.

Tuesday.—Early in the morning Knight testing No. 5 mono., then handing over to Mr. Wight, who did some very good circuits, after which Mr. Andreae flew several straights in good style. Meanwhile, Mr. Mitchell was having a good hour's practice on No. 3 mono., doing straights. Mr. Knight then on biplane with his namesake (pilot), in back seat. Mr. Beevor on biplane with Mr. Waterfall behind. Lieut. Blatherwick was meanwhile doing good circuits on No. 5 mono. Mr. Andreae then took No. 5 for straights, Barnwell circuits on No. 5. Mr. Beevor solo for first time on biplane doing straights. Mr. Waterfall on No. 5 mono. for circuits, Mr. Beevor circuits solo on biplane. This pupil is showing very good progress. Mr. Knight with Knight (pilot) as passenger on biplane, circuits. Mr. Wight circuits on No. 5 mono. at good height. Mr. Waterfall then on No. 5 mono., landing outside the Aerodrome owing to engine stoppage, and doing some damage to machine, owing to running into a tree.

Mr. Barnwell out early Thursday morning on new biplane (70-h.p. Gnome), with Major Brancker (new pupil). Knight circuits

on same machine with same passenger. Barnwell first with Mr. Mitchell, and then with Mr. Beevor, circuits. Too windy for pupils' solo work. In the evening Barnwell with Capt. Balfour (new pupil) on biplane (70-h.p. Gnome) for circuits. Knight testing other biplane, then handing over to Mr. Beevor, who did some very good circuits. Knight testing No. 3 mono. then Mr. Mitchell straights for about 1 hour. Mr. Knight (pupil) with Knight in back seat, circuits on biplane. Mr. Waterfall with Capt. Balfour in passenger seat, circuits on biplane. Barnwell and Knight on biplanes, both with passenger.

Knight out testing biplane early Friday with Mr. Beevor as passenger, then Mr. Beevor solo circuits. Knight with Capt. Balfour and then with Major Brancker, both in back seat. These two pupils then alternately doing straights, with Knight behind. Mr. Mitchell solo flight in bumpy wind. In the evening Barnwell test flight on biplane. Too windy for pupil work.

Saturday.—Early in the morning Barnwell on biplane solo, then with Mr. Beevor in pilot's seat, figures of eight, etc. Mr. Orr Paterson, solo circuits on biplane. Knight testing No. 3 mono., then handing over to Lieut. Blatherwick, straights for 10 minutes, Knight then testing other School biplane (70-h.p. Gnome). Knight, with Capt. Balfour in front seat, straights. Mr. Mitchell, solo flight on new biplane. Mr. Andreae, straights on No. 3 mono., then Mr. Mitchell straights for 10 minutes. Barnwell, with Major Brancker in front seat, straights on biplane. Mr. Knight (pupil), with Knight in back seat, circuits on biplane. Then Mr. Knight, solo for the first time, doing some excellent straights. Barnwell with Capt. Balfour in front seat, straights on biplane. Knight with Major Brancker in pilot's seat, straights. These two pupils showing very good progress. Mr. Beevor then went for straights on biplane (70-h.p. Gnome) and made a heavy landing on rough ground, doing considerable damage to machine, but fortunately escaping without serious injury to himself. In the evening, Knight, testing biplane with Mr. Wright, Official Observer, as passenger. Knight then circuits for 10 minutes with passenger. Mr. Orr Paterson then went for his *brevet*, getting through in splendid style, at 600 ft., with fine banked turns and good *vol plané*. Barnwell with prospective pupil, and then with another passenger.

In the afternoon, Sunday, Knight testing biplane, then with prospective pupil, and then two flights of 10 mins. each, both with passenger. Mr. Waterfall circuits on biplane. Knight on biplane with passenger. The bomb-dropping competition, arranged for pupils in the afternoon became purely a Vickers affair, none of the other schools entering any pupils. Messrs. Blatherwick, Waterfall, Mitchell, Andreae, and Orr Paterson competing. The event was won by the last-named pupil, and is described elsewhere. Knight then on biplane with passenger, then with Major Brancker in front seat for straights. Mr. Waterfall with Mr. A. Knight in front seat—circuits. Mr. Knight—pupil—then went up again for more circuits with Knight in back seat. Mr. Orr Paterson circuits on biplane with passenger.



Mr. H. C. Tower who took his *brevet* at the Bristol School, Salisbury Plain, on April 23rd, when he made an excellent flight at 500 ft. high.

London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School.—Sunday, May 18th, Mr. Noel out testing machines at 4.15, later Sir Bryan Leighton doing straights on No. 7 'bus. Mr. P. H. Carr doing circuits under Mr. Noel's supervision.

Monday, 4.35, pupils very busy; Mr. Manton, on No. 2 Blériot, doing circuits. Sir Bryan Leighton doing straights on No. 7 biplane, later doing semi circuits, and Mr. Power doing semi-circuits with Mr. Manton.

Mr. Toné Bayetto (Tuesday), on No. 2 Blériot, starting his *brevet* tests, but being compelled to come down owing to engine trouble.

School started work 5.13 Thursday. Mr. Birchenough doing straights with Mr. Manton, later circuits under same instructor. Mr. Manton out on Blériot 2. Mr. Toné Bayetto doing circuits, later starting *brevet* tests and gaining his certificate in fine style.

After machines being tested Friday by instructors, Mr. Birchenough doing circuits with Instructor Cheeseman, Mr. Power circuits on No. 7 'bus, Mr. Manton circuits on Blériot monoplane, and Mr. Carr and Mr. Power doing circuits on No. 7 b'plane.

Saturday, Mr. Power doing straights at 5.45 on No. 7 'bus under Instructor Manton.

Blériot School.—On Monday morning, last week, Mr. R. Desoutter went aloft on No. 4 in a stiff breeze, with the intention of doing his *brevet* flights, but on completion of two circuits and one figure eight he found the wind was too strong, and discontinued his attempt until dusk, when he tried again, and, flying at 300 ft., got through an excellent test, alighting very well indeed. In the morning, Capt. Cox was out on No. 1 taxi doing straight rolls.

The following morning, Mr. Gandillon was out for practice on No. 4, and did three very good circuits, landing with a well-judged *vol plané* from 200 ft. Capt. Cox was also out at rolling exercise on taxi 1.

In the evening Mr. R. B. Slack took out No. 5 (50 Gnome) for a 20 mins. flight across country in the direction of Harrow, and also practising round the aerodrome, the wind being, however, too strong for pupils.

The following day was windy and no pupils were out. On



Lieut. Roger Marshall, R.F.A. (Reserve), another pupil who passed his *brevet* tests at the Bristol, Lark Hill, School, in a 15-m.p.h. wind.



Mr. R. Orr Paterson, a pupil at the Vickers School who has just passed for his *brevet* with some good flights at a maximum height of 600—700 ft., with good landing on mark and fine glide each time.

Thursday afternoon, a large crowd assembled at the aerodrome for the purpose of witnessing the christening of the 80 Blériot, on which Mr. Hamel flew with Mr. Duprée from Dover to Cologne, with the name "Britannia." After its acceptance by the New Zealand Government, after this ceremony Mr. Hamel took Lord Desborough and others for passenger flights. Mr. Slack was also out flying in No. 5. In the evening Mr. Gandillon obtained the first portion of his *brevet* at about 300 feet, and only darkness prevented him from trying for the second half. On Friday, Capt. Cox was doing very good straight rolls with the tail well up, and is much improving.

Mr. Gandillon tried the second half of his *brevet*, but was troubled by the engine missing fire occasionally, so wisely descended after a couple of figure eights.

British Deperdussin School.—Col. Smyth put in about an hour's rolling on Monday, last week, between 5 and 7 a.m. on No. 2. He is improving, but not quite got rudder control yet. Mr. Jaques, similar time on same machine. Improving wind stopped further work. High wind all day Tuesday and Wednesday, so no school.

Very windy morning, Thursday, calmed down in every way, but *brevets* occupied all time available. Friday, windy in morning, Col. Smyth and Mr. Jaques each had 10 mins. rolling.

On Saturday, Col. Smyth 30 mins. rolling and hopping, much improved, did some very nice straight rolls. Mr. Jaques 30 mins. on same machine. Not got feel of machine yet, chases his tail still, but better towards end of lesson. Mr. Brock entered 35-h.p. machine for speed handicap, won his first heat and the race in splendid style. Lieut. Porte also entered the 100-h.p., and came in second in first heat and fourth in final.

W. H. Ewen School.—The weather conditions are becoming more favourable as the season is advancing, the pupils being out daily. On Monday, last week, practice commenced at 5 a.m., when Mr. Turner made several test flights on the 35-h.p. Caudron No. 1. M. Baumann was getting good results from pupils on the 35-h.p. Caudron No. 2. After testing, he handed the machine over to Messrs. C. George Jagenberg and Pendlebury, who were all making excellent progress in rolling, while Mr. Zubiaga was doing circuits and F. W. Goodden doing half-circuits on the same machine. Later M. Baumann was again out giving a good exhibition flight, rising to an altitude of 3,000 ft., finishing with a long glide. In the evening Mr. Turner was putting the 35-h.p. Caudron No. 1 through further tests, while M. Baumann was doing some good exhibition work on the 35-h.p. Caudron No. 2.

The pupils were out at 4.40 a.m. on Tuesday, when Mr. L. W. F. Turner, after a test flight on the 35-h.p. Caudron No. 1, handed the machine over to Mr. Zubiaga, who started off on his tests for his R.Ae.C. certificate, the first half of which he accomplished in a skilful manner, flying at an altitude of 200 ft. and landing near the mark. Starting off again, he completed 4 figures of eight at an altitude of 400 ft., before coming down. M. Baumann was also

getting good results from pupils on the 35-h.p. Caudron No. 2. After testing, he handed the machine over to Lieut. W. C. Hicks, who was flying circuits in good style, while Messrs. Pendlebury and Cowling were rolling on the same machine. Lieut. R. C. H. Bewes had his first instruction in rolling. Later, Mr. Turner was on the 60-h.p. Caudron doing several solo and passenger flights.

It was too windy for school work on Wednesday, M. Baumann, however, made a splendid flight at 4.20 a.m. on the 35-h.p. Caudron No. 2.

On Thursday the pupils were out at 4.15 p.m., under the instruction of Mr. L. W. F. Turner and M. Baumann. Mr. Turner, after testing the 35-h.p. Caudron No. 1, handed the machine to Mr. Zubiaga, who successfully passed the second test for his *brevet*, flying confidently and landing on the mark. Lieut. Hicks and W. Warren were afterwards doing circuits in good style on the same machine. Mr. Turner then made several good exhibition flights on the 60-h.p. Caudron. M. Baumann was also getting good results from pupils on the 35-h.p. Caudron No. 2. After a test flight he handed the machine over to Mr. C. George for rolling practice.

It was not until 6.30 p.m. that school work began on Friday, when M. Baumann, after a test flight on the 35-h.p. Caudron No. 2, handed the machine over to H. W. Goodden, who was doing half circuits in good style, while Mr. C. George was rolling on the same machine. Mr. Turner, after testing the No. 1 Caudron, handed the machine over to Lieut. W. C. Hicks, who made several circuits in good style, while Mr. Prosser was doing straight flights on the same machine.

On Saturday, the pupils were out at 4.10 a.m., when M. Baumann, after testing the 35-h.p. Caudron No. 2, handed the machine over to F. W. Goodden, who was flying good circuits, while Messrs. Pendlebury and Cowling were doing straights, and Lieut. Bewes making good progress in rolling. Mr. Turner was also busy with the 60-h.p. Caudron, giving several solo and passenger flights. During the afternoon Lieut. C. L'Estrange Malone was on the 80-h.p. Caudron, doing some very fine flying and cross-country work with a passenger.

At six o'clock on Sunday morning the school was out under the instruction of Mr. L. W. F. Turner, who, after a test flight on the 35-h.p. Caudron No. 1, handed the machine over to Lieut. W. C. Hicks and W. Warren, who were doing circuits in good style, while Mr. Prosser was doing straight flights. Mr. Turner took several pupils up as passengers on the 60-h.p. Caudron for air experience. M. Baumann, after testing the 35-h.p. Caudron No. 2, handed the machine over to F. W. Goodden, who was flying good circuits, while Messrs. George, Jagenberg and Lieut. Bewes were rolling on the same machine.

Temple School.—On Friday, last week, Mr. George L. Temple was out on the 35-h.p. Caudron, flying in fine style. The next day, at 4 a.m., G. L. Temple left Hendon and flew to Park Royal, on the 35-h.p. Caudron, arriving there at a height of 1,800 ft. Later in the day he gave some graceful exhibitions of flying in conjunction with Mr. J. L. Hall, and at 5.30 p.m. flew back to Hendon, later



Mr. René Desoutter, who passed his tests in brilliant style for the R.Ae.C. certificate at the Blériot School, Hendon, last week. He is the brother of Marcel Desoutter, so well known to Hendon habitués.

giving an exhibition flight there. On Sunday, he was out throughout the day, making some fine switchbacks, and occasionally flying "hands off." Monday, Mr. Temple tested the air, and instructed pupils on the Caudron, Messrs. Vale, Penny, Lance, Ambler, and Ritchie all making good straights. Later, G. L. Temple took as passengers in turn, M. Lance, Lieut. Maurice Ambler, and A. Vale. Later he was flying solo for 15 mins.

Salisbury Plain.

Bristol School.—Wind of 15 miles an hour first thing on Monday, last week. Pixton took Lieut.-Col. Hamilton for one flight, and Major Hewetson for three trips. Messrs. Adams, Grey, and Delaplane each made good solos of about 15 mins., Busted taking Lieut.-Col. Hamilton and Lieut. Burns for instruction, following with a test of one of the Bristol tractor biplanes. Further work was postponed, because no flying was possible later in the day, wind blowing too hard.

On Tuesday at 4.45 the whole of the Bristol staff and pupils out, but it was six o'clock before any flying was possible. Busted took up the Bristol tractor biplane with Lieut. Spencer Grey, R.N., as passenger. Pixton meanwhile giving tuition to Lieut.-Col. Hamilton and Major Hewetson, and Mr. Adams made a good biplane solo. Mr. Garnett taxying for quarter of an hour on a single-seater monoplane. Wind and rain prevented further work in the afternoon and evening.

Things busy in the early morning Wednesday—Busted first up, giving tuition to Lieut.-Col. Hamilton and Major Hewetson, Pixton taking Messrs. Adams, Grey and Delaplane excellent solos. Busted, a couple of flights in the Bristol tractor, but rising wind prevented further work. In the evening Busted and Pixton each made several tests with pupils as passengers, but conditions too bad for solos.

On Thursday, Pixton was up very early for a solo test, after which Mr. Adams set out and flew a good solo, landing neatly. Pixton gave biplane tuition to Major Hewetson and Lieut. Burns. Mr. Garnett taxying on one of the single-seater monoplanes. Busted with a passenger made a couple of tests of one of the Bristol tractor biplanes. Busted made two more flights in the evening, but found conditions too bad for school work.

Wind and rain baffled all attempts at school work on Friday morning, and weather not favourable evening. Pixton managed to give tuition to Lieut.-Col. Hamilton, two flights, and one flight each to Major Hewetson and Lieut. Burns. Conditions too bad for further work.

On Saturday morning the Bristol tractor, staff and pupils were out early, but wind prevented a start being made until 6.30. Pixton took Lieut.-Col. Hamilton, Lieut. Priestly and Lieut. Burns for one trip each. Major Hewetson and Mr. Adams both made excellent biplane solos, the former then taxying on a single-seater monoplane for 20 mins., later going out and making some good straights.

Royal Flying Corps. No. 3 Squadron.—On Tuesday morning of last week a few flights were made early, but the wind got up and stopped all further outdoor work until Thursday morning, when, in a



The new Martinsyde monoplane fitted with 120-h.p. Austro-Daimler engine. Mr. Gordon Bell is in the pilot's cabin.

stiffish wind blowing, Lieut. Carmichael was out on H. Farman 274, testing the weather. Afterwards Lieut. Carmichael led the way to Perham Downs for the review, getting to a height of 1,800 ft. very quickly. He was followed by Lieut. Roupell, on H. Farman 286, Major Higgins, D.S.O., on H. Farman 277, Sergt. Ridd, on M. Farman 216, Capt. Connor, on M. Farman 270. Major Sykes and Major Brooke-Popham watched the departure of the machines, which arrived back safely during the afternoon. In the evening Lieuts. Cholmondeley and Carmichael, on H. Farman 274, made several useful flights, generally with passengers. Lieut. Small made two flights on M. Farman 270, Lieut. Roupell on H. Farman 286, Major Higgins, D.S.O., made one flight on 286 and two others on H. Farman 277.

On Friday Lieut. Cholmondeley on H. Farman 274 made half a dozen high flights with passengers, and later Lieut. Carmichael was piloting the machine. Major Higgins, D.S.O., on H. Farman 277, made three flights, including one to Upavon and back. Lieut. Small was on M. Farman 270 for three-quarters of an hour, and then took up Mechanic Hunter on M. Farman 269, while Lieut. Conren was piloting M. Farman 216. Lieut. Roupell was about to start on H. Farman 286 with a passenger, when a spanner, which had been left on the plane, was drawn into the propeller, and broke it. Lieut. Porter arrived from Lichfield Common on M. Farman 269, and Major Brooke-Popham arrived from Farnborough on BE 204, on which Major Higgins, D.S.O., later made a flight.

On Saturday morning, Major Higgins, D.S.O., and Major Brooke-Popham were out several times on BE biplane 204. Lieut. Roupell put up three flights on H. Farman 277, and Lieut. Carmichael on Henry Farman 274 also made three trips. Major Higgins, D.S.O., then took over 274, taking up for 20 mins. Master Thomas Bannister to a height of 2,000 ft. On Monday, Lieut. Small out on

M. Farman 216 with Air-Mechanic Hobby for flying tuition to Upavon and back. Capt. Mellor on 216, with Corpl. Amy as passenger, and later with Corpl. Crocker. Lieut. Cholmondeley made two flights on H. Farman 274.

In the evening Lieut. Roupell was on H. Farman 286, and took Major Higgins over to Farnborough, from whence Major Higgins returned in biplane BE 208. Lieut. Roupell took off in H. Farman 286 for Salisbury, but came down owing to leaky petrol tank at Overton. Lieut. Cholmondeley on H. Farman 274, with Lieut. Carmichael as passenger, did 1½ hrs. scouting practice. Lieut. Allen, on H. Farman 277, made two flights. Lieut. Glenwill and Capt. Mellor were on M. Farman 216. Major Higgins made 3 flights on BE 203, with Lieut. Wadham and Lieut. Anderson. Capt. Darbishire arrived from Farnborough on BE biplane 220, having had a good time. Lieut. James also made a flight on BE 220, with Mr. Flemming as passenger. Tuesday morning, Major Higgins made half a dozen flights, one on BE 203, and the others on BE 204. Lieut. Cholmondeley made several good flights on H. Farman 277, and some experiments in observing artillery firing were carried out on Knighton Downs. Lieut. Allen, on H. Farman 277, with Lieut. Anderson made five flights. Lieut. James was out on BE 220 with officers as passengers using wireless telegraphy.

Sussex County Aero Club (Shoreham).

Saturday.—After Raynham had the Avro school machine out for circuits, Gaskell practised straights. Rolshoven did some circuits, and Eric Pashley had a passenger up taking photographs.

On Sunday morning, E. Pashley up with passenger and landed at Roedean, returning in the evening.

On Monday, E. Pashley went with passenger to Bognor, landing on the sand. They returned following morning.

The Avro waterplane has been assembled, and was to have been launched this week.

HENDON NOTES.

Two events are down on the programme for the Wilbur Wright Memorial Day Meeting, which opens to-day (Saturday) at 3 p.m. The first of these is a cross-country handicap, open to all types of aeroplanes, and the other event is a grand speed handicap. The Grahame-White Aviation Co. Ltd., are presenting a trophy and money prizes for both these events.

One of the features of the past Hendon meetings has been the large number of cars present. On several occasions they have been lined up four deep in the enclosure. The last Aerial Derby Day created a record in this respect, the enclosures being filled with cars to overflowing, so to speak. In order to cope with this matter satisfactorily, especially on Saturday next—the day fixed for the Second Aerial Derby—the paddock has been considerably extended, providing for a much larger number of cars.

Although the London Aerodrome is already a world-famous institution, and I believe I am right in saying that there is nothing like it in any other country, every week sees some fresh improvements added to this popular London rendezvous. The whole of the telephone system at the aerodrome has been re-installed, so that one can now telephone from various parts of the ground. Another addition that is being made is the equipment of a small hospital where minor injuries, &c., can be dealt with on the spot.

When I first saw the Caudron biplane it struck me as not being all that could be desired for observation purposes, for both pilot and passenger appeared to be boxed up somewhat sitting midway between the planes as they are. However, I had the pleasure of a trip with Lewis Turner on the "60" last Saturday, and I was surprised at the exceptionally fine view all round one gets, and considering the smallness of this splendid little biplane, there is comparatively plenty of room.

Brighton and Aviation.

BRIGHTON is promised plenty of flying this season, for Mr. Magnus Volk has many schemes in his head. Unfortunately the Radley-England waterplane came to grief on Monday, when Mr. Gordon England attempted a right-hand turn too near the water. The pilot's boat struck, and a piece was knocked right out of the bottom. The machine began to sink rather rapidly, and Mr. Harry Preston's motor yacht, as well as motor boats, put off to the rescue immediately. When they reached the machine, only the top plane was visible, Mr. England and the passenger sitting on the edge. However, everything was rescued, and Mr. England explained to FLIGHT correspondent that he was quite unaware that he was so close to the sea, otherwise he would not have banked. The water was as clear as glass. The Avro 'bus should be over by to-day (Saturday), but she appears to be somewhat under-powered. Mr. Pashley flew over on Sunday,

If you want a pleasant sensation on a warm sunny day when you feel particularly lazy, have a *vol pancake* on the Maurice Farman biplane. Here you get the real sensation of floating on air. The engine is throttled down until it almost stops so that the roar practically ceases, and seated in the comfortable arm-chair seat formed by the petrol tank you feel as if you could enjoy a quiet snooze. At least, that was something like what I felt when I went up with Louis Noel in the G.-W. M. Farman the other day. I noticed a rather funny thing on this occasion. Peing busily engaged in watching how my pilot "worked the show" (which he does with all the skill one could wish for), I had not noticed to what height we had risen, so I just looked over the side. There were three cows standing alongside some bushes, and judging from the size of these quadrupeds, I put our height at barely 100 ft. A doubt however was in my mind and upon closer investigation the "cows" turned out to be 20 ft. high advertisements for somebody's milk and the bushes were trees. So we were something more than 100 ft. up!

René Desoutter, who recently qualified for a pilot certificate at the Blériot School, is the elder brother of Marcel Desoutter, the well-known Hendon pilot. Before taking to flying he and his two brothers were connected with one of the leading English model aeroplane firms, and it was they who, with barely 24 hours' notice, made the two biplane models which adorned the table at the dinner given to Paulhan in London after his famous flight to Manchester. René Desoutter was also interested for some time in the construction of motor cycles. Like his brother, he proved a very apt pupil, and incidentally he was the twentieth pupil to go through the Blériot school at Hendon without a single smash.

VEE JAY.

landing on the hills east of Brighton. On Monday he went to Bognor taking Mr. Geere (Avro pilot) as passenger. He returned to the aerodrome Tuesday morning.

At Brooklands To-day, Saturday.

BROOKLANDS *habitués* are expected to roll up in great numbers to witness attempts on the British altitude record by Mr. Hamel (80-h.p. Borel monoplane), Mr. Gordon Bell (120-h.p. Martin-Handasyde monoplane), and Mr. Hawker (80-h.p. Gnome-Sopwith tractor biplane), and others, in the afternoon and evening. £50 is offered by the B.A.R.C. to anyone breaking the record, which is at present held by Mr. de Havilland (10,650 ft.).

On this day, too, the Associates of the Royal Automobile Club have their Gala and Gymkhana, in addition to which four free passenger flights are to be balloted for by the Royal Automobile Club members.

BRITISH NOTES OF THE WEEK.

Aeroplanes at a Review.

INCLUDED in the forces which were reviewed by General Sir H. Smith-Dorrien on Salisbury Plain, on Thursday of last week, were the No. 3 Squadron of the Military Wing of the Royal Flying Corps from Larkhill and the personnel of the Central Flying School at Upavon. The various pilots had flown over from their respective stations early in the morning, and during the review the machines were all neatly pegged down, with the pilots and the mechanics standing at attention by them. At the conclusion of the review, although there was a tricky wind blowing, the machines left in regular order for Larkhill and Upavon. Altogether the machines, their pilots, and the equipment of the units of the Royal Flying Corps created a most favourable impression among those present.

Aeroplanes at the Naval Manœuvres.

HYDRO-AEROPLANES are to play an important part in the Naval manœuvres which are to be held from July 14th to August 8th, and although it is of course impossible to get authentic details as to the work to be done, it is understood that special attention will be paid to the question of the efficiency of the aeroplane as a weapon of defence against submarine attack.

Farnborough to Montrose in One Day.

OF the several flights made from Farnborough last week, by far the best was that of Capt. Longcroft on Wednesday week, who, starting from Farnborough on his BE biplane 273, at 5.25 a.m., arrived safely at the Upper Dysart aerodrome at Montrose at 4.20 p.m. His first stop had been for petrol at East Grimsby at 7.20 a.m., and he re-started at 9.30, then going on to Ellington, near Morpeth, where he made a second landing at 11.30 a.m. He was away again at 2.30, and in ten minutes under two hours had completed his journey of 550 miles. On BE 272, Capt. Becke started from Farnborough on Monday, and after delays at York and Berwick, he reached Montrose on Wednesday evening. Major Burke, also on a BE machine, No. 295, arrived at Montrose from Farnborough on Saturday evening.

The Fatality of Montrose.

IT was a tragic sequel to the cross-country flight from Farnborough to Montrose last week, when the machine which had been taken up to Scotland by Major Burke fell, on Tuesday morning, while being piloted by Lieut. Desmond Arthur. The unfortunate pilot, who had done very good work on the Bristol, BE and M. Farman types of biplane, apparently jumped from the machine while it was falling, and he sustained injuries to which he instantly succumbed. According to those who witnessed the accident, the machine capsized and then turned several somersaults before reaching the ground.

Paris to Whitstable on a Borel.

AN exciting time was experienced by Mr. Gordon Bell and his passenger, Mr. C. C. Turner, on a Borel monoplane, in their

journey on Wednesday morning from Paris to England. They left Buc at 4.30 a.m., and had to land in France three times on account of fog, on one occasion having to stop for four hours. In consequence of the fog they got very much off their course, but eventually they reached Crotoy. From there they skirted the French coast to Sangatte, and headed across the Channel to Pegwell Bay, at a height of 5,600 ft. Engine trouble developed, and they effected a landing at Whitstable, and were forced to postpone the remainder of the journey to Eastchurch.

Mr. Corbet Wilson Flies the Alps.

ONCE again has Mr. Corbet Wilson demonstrated that he is one of the best cross-country flyers. For some time he has been practising on the Blériot ground at Buc, and on Wednesday of last week he decided to pay a visit to some friends who were staying in Switzerland. At 6 a.m. he left Buc, being accompanied on his Blériot-Gnome monoplane by his mechanic, and after a non-stop flight of about three hours he landed at Dijon. He continued his journey at 6 p.m., and flying by way of Auxonne, Dole and Pontarlier, one of the Jura Alps, at a height of about 4,000 metres, landed at Lausanne at 8.25 p.m.

Mr. Hucks at Sleaford.

DURING the early part of last week, Mr. B. C. Hucks flying at Sleaford in Lincolnshire, had very bad weather. However, the crowd were not disappointed and the three days' engagement was an unqualified success from everyone's point of view.

On neither of the three days, was the wind blowing less than 30 miles per hour, while the concluding flights were carried out in drenching rain. It was significant that although the weather became progressively worse each day, yet the attendance on the flying field increased from day to day.

On the completion of his flights on the Wednesday, there was a scene of great enthusiasm, when, as a surprise, Mr. Hucks was presented by the promoters, with a silver breakfast dish, as a token of their admiration for his remarkable piloting.

Work on the Sopwith Waterplane.

DURING last week at Cowes several highly satisfactory trials were made by Mr. Sopwith and Mr. Hawker of the new Sopwith hydro-aeroplane, which more than realised the high expectations formed of its capabilities. Two more new Sopwith tractor-type biplanes are expected at Brooklands next week ready for testing.

Henry and Maurice Farman Machines.

WE would call our readers' attention to the fact that the Aircraft Manufacturing Co., of 47 Victoria Street, Westminster, are willing to send free to any readers of FLIGHT their latest catalogue, showing the various types of machines produced by Henry and Maurice Farman. The Aircraft Manufacturing Co., have the sole rights for these machines for the British Empire, and supply both French and British built machines.



FLYING AT RANELAGH.—Mr. Gustav Hamel just before landing at Ranelagh last week, after one of his exhibition flights.

FOREIGN AVIATION NEWS.

A New French Height Record.

HAVING the world's height record (pilot only) to his credit, Perreyon, on the 21st, attempted to capture the record for pilot and one passenger. Using an 80-h.p. Gnome-Blériot tandem monoplane, with a sergeant as passenger, he rose rapidly from the Buc aerodrome at 10 a.m., and on returning to *terra firma* shortly before mid-day, it was found that his barograph registered an altitude of 4,000 metres, just 300 metres short of the world's record for pilot and passenger made by Lieut. von Blaskhe. It was, however, some 400 metres better than the previous French record, which stood to the credit of Legagneux and Miss Trehawke Davies. The world's record for pilot alone is 5,880 metres.



Prince Henry of Prussia at the Giessen aerodrome in connection with the Prince Henry Flight Competition.

Good Flying by Mme. de la Roche.

MME. DE LA ROCHE, who has been flying at the Farman School at Buc for some time, made a fine flight of more than an hour's duration over the country round the aerodrome, on the 23rd inst.

Amberieu to Macon and Back.

ACCOMPANIED by *chef pilote* Lacrouze, Vidart, on a Morane monoplane, on the 21st inst., went from Amberieu to Macon, and the pair returned to Amberieu two days later. During the evening Vidart took his brother for a lengthy trip over Amberieu and its environs.

Testing the Maurice Jeansson Machine.

ON the 21st the Maurice Jeansson 400-h.p. tandem biplane was tested by Colliex at Triel, and flew a distance of about 12 kiloms. Three persons were on board, and the speed of the machine was said to be in the neighbourhood of 100 k.p.h.

Paris to Marseilles Aerial Post.

ON Sunday morning Daucourt on a Borel monoplane fitted with a 50-h.p. Gnome motor and Rapid propeller, set out from Villacoublay with a load of papers which he had to deliver at Marseilles. He had intended making a non-stop flight to Lyon, but between Sens and Dijon the wind was so strong that he was forced to land at the latter place after flying at a height of 2,000 metres to escape the worst of the wind. In 50 mins. he was away again and reached Lyon at midday. He waited at Lyon until 3.55, as a race meeting was in progress at the ground at Marseilles where he was to land. He made a fine run to Marseilles, and arrived at 6.55, after having made an exhibition flight over the Mediterranean.

A Farman Escadrille at Work.

AN *escadrille* of seven M. Farman biplanes, piloted, respectively, by Capt. St. Quentin, Lieuts. Battini, Grezeaud, d'Abrantes, Bordes, Sergt. Quennehen and Sapper Autroche, each accompanied by an observer, started from Chalons Camp on the 21st and landed at Bar le Duc. The next day the officers continued their reconnaissances over the Argonne country and the Meuse valley to

Verdun, and then returned to Chalons, making a journey of 250 kils. On Saturday the *escadrille* was flying at Chalons for 2½ hrs.

The Garros-Audemars Match.

THE final arrangements for the match between Garros and Audemars are that the three events shall be held at Juvisy to-morrow (Sunday). The speed trial of 50 kiloms. will be held over a course of 2 kiloms. round, and the two machines are to be started at a signal from the timekeeper.

Caudron Frères Fly Home.

AFTER a business visit to Issy, Rene and Gaston Caudron flew home to Crotoy on their Anzani-Caudron machine on the 23rd inst. Starting at 6 a.m. they were forced to land 7.30 at Beauvais on account of the thick mist, but they were able to resume their journey a little later and by the aid of the compass arrived safely at Crotoy at 9 o'clock.

The Ghent Postal Service.

CONTINUING his work as an aerial postman, Crombez, on a Deperdussin monocoque, on the 21st inst. made a very fast trip from Ghent to Tournai, and on Sunday last he went to Mons and back, covering the 160 kiloms. in 1 hour 10 mins.

More Farman Superior Pilots.

ON the 20th inst., Poivre, a Comité Nationale pupil, made a fine trip from Etampes to Mailly Camp on a M. Farman, and the next day he returned to Buc, while Marc made a flight of over two hours at Etampes, and Lieut. Cassin carried out a 200 kilom. trip from Etampes to Montargis, Chartres, and back. On the 22nd, Doncker went from Buc to Pont Levozy on a M. Farman, while Pavet went from Etampes to Pithiviers. Two C.N. pupils at Etampes, David and Germain, each made flights of an hour's duration. On the 23rd, Capt. Laborde made one qualifying flight for a superior *brevet* over the course Buc-Chartres-Orleans-Buc, while Doncker made one test over the Buc-Pont Levozy-Buc course. Capt. Bares made an hour's flight at Buc, while Lieut. Vanduck went from Buc to Mailly and Provins, and back to Buc. Van Steyn, a Dutch pupil at the Farman School at Etampes, finished up his tuition with a trip of one hour.

Long Flights by Borel Pilots.

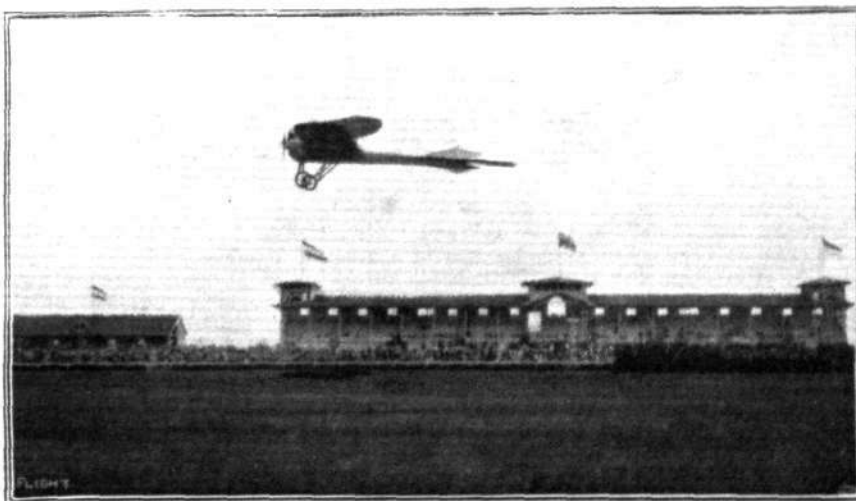
ONE test for a superior *brevet* over the Buc-Chartres-Orleans course on the 20th inst. was made by Sergt. Clamadieu on his Borel monoplane and Lieut. Roeckel went from Buc to Chalons and then on to Epinal. On Saturday last made a superior *brevet* test over the Buc-Chartres-Orleans course.

Busy Times at Deperdussin School.

ALTHOUGH the weather has been none too good, the thirty pupils at the Deperdussin School at Rheims have been kept busy, and each day recently the number of ascents has been in the neighbourhood of two hundred. For the safety of the pilots, when flying after dark, a marine searchlight with a range of 30 kiloms. has been fitted up.

A Big Speed Range.

TESTING a three-seater Deperdussin for the French army, Prevost, on the 21st inst. at Rheims, made the speed trial in 24 mins. 51 secs., against the wind, and 11 mins. 7 secs. with the wind, a variation of 77 kiloms. per hour.



PRINCE HENRY PRIZE.—The start at Wiesbaden in front of the grand stands, Lieut. Joly, on the Gothaer mono, is just getting away.

Junior a Superior Pilot.

JANIOR, of the Deperdussin school at Rheims, completed his tests for superior *brevet* on a single-seated Deperdussin on the 22nd inst., making a trial of over an hour's duration at a height of 1,100 metres.

Another Deperdussin Superior Pilot.

AFTER completing his tests for a superior pilot's *brevet*, Lieut. Adrian on his Deperdussin monoplane on Sunday afternoon went from Amiens to Rheims.

Fine Work at Nieuport School.

AT the Nieuport School at Villacoublay on the 24th inst., Capt. Guillaumont was flying for 3 hrs. at a height of 1,500 metres, and Lieut. de Challenge and Sergt. Andre each made one superior *brevet* test. Sergt. Picquet finished his tests by a trip of 400 kiloms., and Sergt. de Marmie took Lieut. Villepin from Rheims to Paris and back.

Long Flights on Blériots.

ON the 21st inst., Capt. Faure made a fine trip from Etampes to Mailly Camp and back in 3½ hours on his Blériot-Gnome, and on the previous day Lieut. Gourlez, also on a Blériot, went from Dijon to Vesoul and Belfort; while Lieut. de la Morlais went from Pont Levoy to Buc, and returned to Chateaufort later in the day.

At the Nieuport Naval School.

AT the French naval aerodrome at Frejus, on the 21st inst., Levasseur, *chef pilote* of the Nieuport school, made a flight of an hour and three-quarters at a height of 1,800 metres over the Frejus, St. Raphael and Ste. Maxime channels.

The Michelin Target Prizes.

THE Aero Club of France has decided that trials for the £2,000 Michelin Target Prize shall be held at Chalons Camp during the weeks June 15th to 22nd, July 13th to 20th, August 10th to 17th, and September 7th to 14th.

Over the Alps.

ON Saturday last, Lieut. Broccard arrived at Chambéry from Grenoble on his Deperdussin monoplane, and in the evening he left for Annecy. He was accompanied by a passenger.

AIRSHIP NEWS.

More Dirigibles for Germany.

It is announced from Berlin that the Budget Committee has voted the necessary credits for the purchase of 20 new dirigibles, which will be distributed in twos at the stations at Metz, Cologne, Düsseldorf, Wilhelmshaven, Hanover, Liegnitz, Posen, Königsberg, Schneidemühl, and another point to be arranged later.

7-Hour Voyage by "Z II."

A FINE night trip was made by "Z II" from Cologne on the 20th inst. Leaving the Bickendorf hangar at midnight, the airship was taken to just by Coblenz, and made a reconnaissance above the Ehrenbreitstein fortress. The airship was back at Cologne at 6 a.m., and cruised over the vicinity for an hour before landing.

Trials with the "Commandant Coutelle."

WITH a military crew on board, including Col. Bouttiaux, the new Zodiac dirigible "Commandant Coutelle" made a trial trip of two hours' duration on the 20th inst., and another similar trial was made on the following day. The vessel was piloted by Comte de la Vaulx, and carried 15 persons on board.

Wedding Bouquets from an Airship.

VERY prominent in the wedding celebrations in Berlin was the part played by the Zeppelin airship "Hansa," and while the wedding ceremony was in progress on Saturday flowers were dropped from the airship on to the cupola of the Royal Chapel.

Tests with the British Dirigibles.

DURING this week extended experiments have been made with both the Army dirigibles "Gamma" and "Beta." The former has been making daily reconnaissances from a camp at Bracknell, Berks, with Capt. the Hon. C. Brabazon in charge, while the "Beta" has been engaged in bomb-dropping experiments at Aldershot. On Monday afternoon the "Beta" paid a visit to Portsmouth, cruising over the Harbour and along Spithead before landing on Whale Island.

An American Dirigible.

TRIALS are being carried out at Pasadena, Cal., with a dirigible which has been built by Roy Knabenshue. It is of the non-rigid type, the envelope being 150 ft. long and about 30 ft. in diam. The car, which is 112 ft. long, has accommodation for twelve passengers. A 35-h.p. water-cooled engine is fitted, and it drives two propellers. The airship was up for 45 mins. on May 4th, and then sustained some damage through coming in contact with the tops of some trees.

The French Naval Hydro-Aeroplane Contest.

CERTAIN changes have now been made in the regulations for the competition for Naval aeroplanes which is being organised by the Aero Club of France to be held at Deauville in August next. The weight allowed for the anchor has been reduced from 7 to 5 kilogs., and the total weight to be lifted is reduced from 200 to 176 kilogs. The duration of the consumption test has been reduced from two to one hour, and the tests for seaworthiness have also been made easier. Thus the machines will only have to describe one figure eight and cover one round of the quadrilateral course in a wind blowing 10 metres per second, and in a wind of similar strength the machines must remain at rest on the water for 10 minutes. In a calm the machines must leave the water in a distance of not more than 400 metres, and the machines must climb at least 50 metres in 25 mins. The minimum distance of 250 nautical miles in 8 hours, to be flown in order to qualify for a prize, has been reduced to 180 nautical miles.

Another Death in Germany.

THE pilot Dietrich who was severely injured a few days previously at the Johannisthal aerodrome, succumbed to his injuries on Sunday last.

A Caudron in Belgium.

ON his Caudron machine with 50-h.p. Anzani motor, Bosano started from the Etterbeek ground at Brussels at 4 a.m. on the 21st, and after a splendid trip he landed at the Corbeaulieu aerodrome, near Compiègne at 9 a.m.

For the Swiss National Fund.

NOT only have the people in Switzerland supported the National Fund well, but the Swiss colonies abroad have also contributed. The Swiss colony in St. Petersburg have sent just on £300; Barcelona, £150; Bucharest, £200; Rome, £340; Milan, £305; Naples, £202.

Improving the Argentine Height Record.

ON the 23rd inst., at Buenos Ayres, Newberry, on a Morane monoplane, further improved on the height record of 4,075 metres made five days previously by going up to 4,400 metres.

THE ROYAL FLYING CORPS.

The following appointment was announced in the *London Gazette* of the 23rd inst.:-

R.F.C.—Military Wing.—2nd Lieut. Robert O. Abercromby, Special Reserve, to be a Flying Officer, to date May 12th, 1913.

The following appointments were announced by the Admiralty on the 27th inst.:-

Lieuts. R. B. Davies, to the "Actæon," as Flying Officer for Naval Flying School, to date April 17th, and to the "Hermes," as Flying Officer, to date May 7th; S. D. A. Grey, to the "Actæon," additional, as Squadron Commander and for command of Calshot Naval Air Station, to date May 1st, and to the "Hermes," as Squadron Commander, Calshot Naval Air Station, to date May 7th.

R.F.C. Surgeon gets his Ticket.

STAFF-SURGEON H. V. WELLS, R.N., who was appointed to the charge of the medical requirements at the Naval Flying School at Eastchurch on February 20th of last year, qualified for a R.Ae.C. pilot's certificate at Eastchurch on Saturday last.

British Made Emaillite.

MANY constructors will be interested to learn that the installation of the British factory for the manufacture of Emaillite has now been satisfactorily effected, already a large quantity has been produced.

In addition, the British Emaillite Co., Ltd., of 30, Regent Street, S.W., have placed upon the market two new grades, which are known as Nos. 6 and 4, and one of which is entirely new. With regard to the first mentioned; by its use we understand the cost of doping any machine is reduced by about 40 per cent., as, not only is the price lower than grades 2 and 3, but, in addition, it is only necessary to use two coats of No. 6 to achieve exactly the same result as the old combination of two coats of No. 2 and one coat of No. 3. The quantity of No. 6 thus utilised is exactly the same as the two coats of No. 2 originally used, so that both labour and material used in doping are reduced 33½ per cent., in addition to which there is the price reduction.

The other new grade, No. 4, is also an economical one, as we understand that approximately one gallon is sufficient for a surface of about 50 square yards, and the thinnest possible coat is all that is needed to achieve a first-class and highly glossy finish, which materially enhances the appearance of the machine.

These grades have already been extensively used by the French Government, and such leading constructors as Astra, H. and M. Farman, French and British Deperdussin Cos., Caudron, Grahame-White Aviation Co., Short Brothers, Breguet Aeroplanes, Blackburn Aeroplane Co., Alec Ogilvie, &c., and, to judge by the letters received, invariably with the maximum of satisfaction.

SCIENTIFIC INSTRUMENTS, THEIR DESIGN AND USE IN AERONAUTICS.*

By HORACE DARWIN, M.A., F.R.S.

BEING THE FIRST WILBUR WRIGHT MEMORIAL LECTURE.

(Continued from page 574.)

In the magnetic method of damping, the force varies as the velocity and the true mean is obtained. With liquid and air damping, the force varies as the square of the velocity, unless the movement is extremely slow, when it varies nearly as the velocity.

Speed of Aeroplanes.

The speed of the aeroplane through the air is usually given by

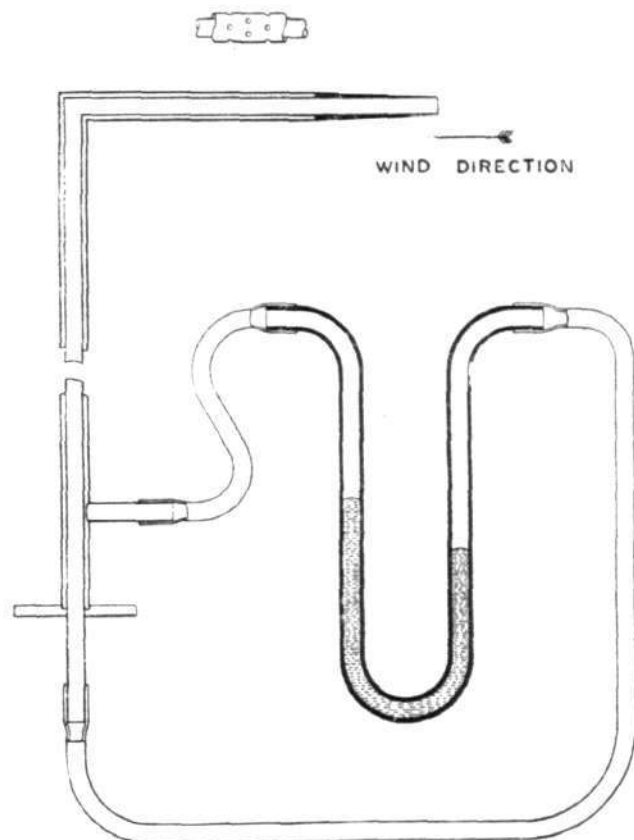


Fig. 3.

reading the position of some form of index on a scale graduated in miles per hour. A Pitot tube and a manometer are often used.

The principle of the Pitot tube is very simple (Fig. 3). If the open end of a tube faces the wind, the air wants to pass down the tube, and if the tube is closed at the other end, the air pressure is increased in the tube and this increase of pressure is a remarkably accurate means of measuring the velocity of the wind. This method is used in Dines' Anemometer, and for measuring the velocity of the air in the wind channel at the National Physical Laboratory. In 1903 Dr. Stanton read a paper before the Institution of Civil Engineers (*Proc. Inst. C. E.*, vol. clvi. p. 78) proving the accuracy of this method of measuring air velocity. Dr. Glazebrook tells me that improvements have recently been made which give even more satisfactory results. The delicate measurement of the air pressure necessary for the most refined work is made by the Tilting Water Gauge designed by Professor A. P. Chattock and Mr. J. D. Fry. This is a laboratory instrument of the highest order of precision, and is far too delicate and accurate to be used on a flying machine. It is a difference of pressure that has to be measured—the increase of pressure in the tube, above the air pressure outside—and a second tube transmits this pressure (the static pressure) to the manometer. It is found by experiment that changes in the size of the opening of the Pitot tube, or the thickness of the tube, or the bevelling of its edge, make little or no difference in the pressure. With the static opening it is different, and its design is important. In the design now adopted at the National Physical Laboratory the pressure obtained is almost exactly what we should expect from theoretical considerations. This is an advantageous simplification, and this form of Pitot tube should be used for all the most refined measurements. But the static tube can be so made that it will give a

pressure blow the true static pressure, and the Royal Aircraft Factory have made use of this and have increased the manometer readings by 20 per cent. in order to give a more open scale.

The tubes transmitting the pressure can be carried a considerable distance to allow the manometer to be placed in a convenient position for reading; this is often of great importance. If it is found advisable to have a large amount of damping in the manometer it is best to have long tubes of large diameter. This gives the correct form of damping. Short tubes of small diameter will give the same amount of damping, but in this case the damping force will vary, as the square of the velocity of the air in the tube, and the reading will not necessarily be the true mean. For the same reason it is inadvisable to cause damping by throttling the passage of the air by closing a valve, or by means of letting it pass through a small hole in a plate.

If a Pitot tube speed-meter gives the correct speed when flying near the ground level, it will not be correct when flying at a great altitude. The error is caused by the change in the density of the air. As you mount, the air becomes less dense because the atmospheric pressure is reduced, and more dense because the temperature falls.

In the following table the actual speed is assumed in all cases to be 100 miles per hour. The temperatures given in the last column are taken on the usual assumption that there is a fall of 1° F. for every 300 ft. rise above the earth's surface.

Height in ft.	Speed readings temperature constant.	Speed readings temperature falling with height.	Assumed temperature.
0	100	100	50° F.
1,000	98.3	98.6	47° F.
2,000	96.5	97.1	43° F.
3,000	94.7	95.7	40° F.
4,000	93.0	94.3	37° F.
5,000	91.3	92.9	33° F.

These corrections were made in the air speed measurements at the Military Aeroplane Trials in 1912 when obtaining the gliding angles of the various competing aeroplanes.

The simplest form of manometer is a U-tube containing a liquid (see Fig. 3). The difference of the level of the liquid is then a measure of the difference of the air pressure in the two tubes. For use on an aeroplane this has two drawbacks: the scale is not open enough to read the speed easily and accurately and tilting of the aeroplane causes an error. Mr. Short of the Royal Aircraft Factory has designed a manometer which overcomes both these objections. It is in effect a U-tube manometer, and he uses two liquids of different densities and which do not mix, and thus obtains a more open scale (Fig. 4). One tube is placed inside the other, and this

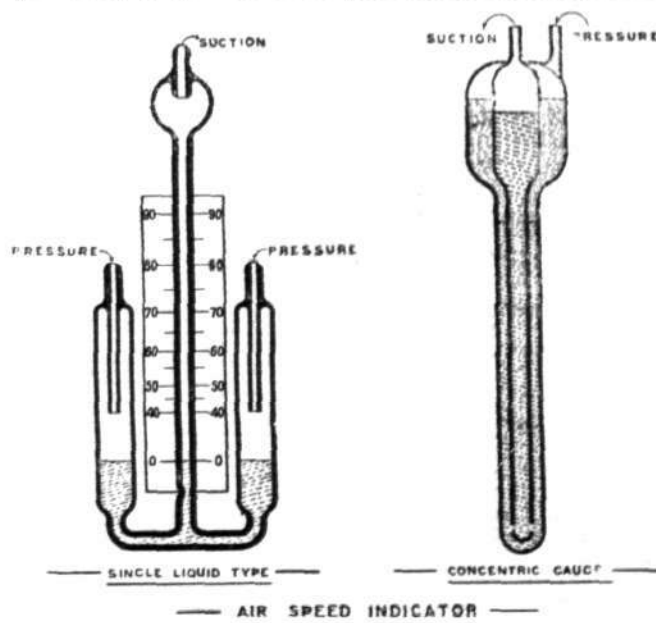


Fig. 4.

overcomes the chief error due to the tilting of the aeroplane, leaving only a small secondary error of no importance. If the manometer is placed 10° out of the vertical, this secondary error will make the reading be 101.4 miles per hour instead of 100. Fig. 5 is another

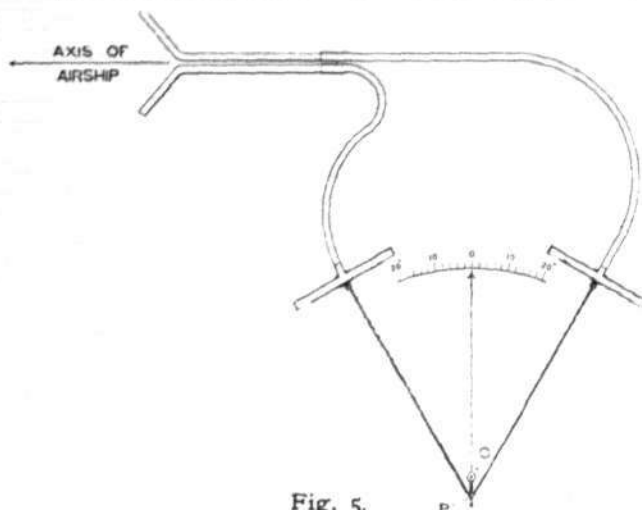


Fig. 5.

form of manometer designed by Mr. Short, using one liquid, and still eliminating the chief error due to the tilting of the aeroplane.

If the aeroplane has an upward or downward acceleration or is changing its direction there is an error.

An aeroplane flying at 100 miles per hour in a circle of 1,400 ft. radius will make one complete turn in one minute, and the banking of 26° will prevent side-slip. In this case the manometer connected to the Pitot tube will read 94.5 miles per hour instead of 100, the correct speed.

If the vertical acceleration is one-tenth gravity on 3.2 ft. per second, the manometer will read 5 per cent. too low or too high according as the acceleration is downward, or upwards. These errors due to vertical acceleration or flying in a circle are not large and they will be the same in any manometer in which the air pressure is balanced by the attraction of gravity on a liquid or a weight. If a spring is used these errors do not exist.

If a Pitot tube is fixed to the tips of the wings of an aeroplane and it is flying in a circle, the speed of the outer wing tip is greater than the speed of the inner wing tip. If these Pitot tubes are joined together by a tube there will be a greater pressure at one end of the tube than at the other, and at first sight we should expect that there would be a flow of air through the tube from the outer to the inner wing tip. But this is not the case, because the aeroplane is moving in a circle and there will be centrifugal force acting on the air in the tube, and this will tend to make it flow outwards and will exactly balance the tendency of the air to flow inwards due to

the excess pressure in the Pitot tube on the outer wing tip, and there will be no flow through the tube. If there is a side-slip this statement is only approximately true, but if there is sufficient banking to prevent side-slip it is true. If both a Pitot and static tube are fixed at the tip of one wing and are connected to a manometer at the centre, its reading will give the velocity of the wing tip. The centrifugal force in this case will act equally on the air in both tubes, and as the manometer measures their difference of the pressures, the centrifugal force will produce no effect on the reading. When flying in a circle the velocity of this wing tip is not the velocity of the centre of the machine. This difference is usually not large, but if it is thought advisable that the manometer should give the velocity at the centre, two Pitot tubes can be used, one at each wing tip, and both be connected to the manometer, the static tubes also both being connected. The manometer will then give the mean of the speeds of the wing tips, that is the velocity at the centre. This is done for accurate speed measurements at the Royal Aircraft Factory.

Ascending Speed.

I have made an instrument for indicating the speed with which an aeroplane or airship rises or falls. It is roughly made, and at present is only in the experimental stage of development, and it will require remodelling in order to reduce its size and make it more convenient. I will, however, give a short description of it, as it may be of some interest.

A clock is arranged to move a valve at equal intervals of time. The valve first connects a vessel to the open air; it then closes and the air in the vessel is at the same pressure as the air outside. After a short time during which we will suppose that the outside air pressure has fallen owing to the aircraft rising, the valve is again moved so that the vessel is connected to the indicating apparatus. This apparatus measures the excess of pressure of the air in the vessel over the air outside, and gives the change of barometric pressure during the short time between the last two movements of the valve; that is, it measures the amount of rise in a fixed time or the vertical speed. It does not give the speed at each instant, but the average speed during a short interval which terminated a few seconds previously. The indication is a little late, and in order to reduce this lateness as much as possible two vessels are used which are opened and closed and connected up alternately to the indicating apparatus.

Direction and Speed.

Two of the instruments we have considered, the Pitot tube speedometer and the compass, give us the direction and the velocity of the aeroplane through the air, but unless we know the speed and direction of the wind, we do not know the real direction of flight or the speed over the ground. These instruments give valuable results, but we want to know the direction the head of the aeroplane should point in order to get to a definite place, and the speed over the ground as well as through the air. I see no satisfactory solution of this problem, and will not discuss the question, except to suggest that someone here present solves it during the coming year.

(To be concluded).

LECTURE AT BIRMINGHAM UNIVERSITY.

We have received the following notice of a lecture delivered at the Birmingham University (Edgbaston) by Lord Dynast of Ropp.

The lecturer gave a full mathematical theory underlying the construction of aeroplanes. The subject was treated from three different standpoints. The dynamics of resistance were studied first, the head resistance being attributed to the inertia of particles in the horizontal component of the normal reaction on the supporting member or any streamline form traversing a fluid. The viscosity of air results in the skin friction, and head resistance can be converted into skin friction as means of diminishing the total resistance. The normal resistance thus resolved is found to be expressed in most convenient form by the formula $R = V^2 (S^{1/3} K \pm L Y)$.

When Q is a factor depending upon V , and passing through the value of 2. Then $V = 74$ m.p.h.

K is a constant for given shape.

L is a linear dimension depending on the perimeter of the cross section of the body in motion.

Y is a variable for dimensions and shape.

S is area of cross section.

V is velocity of motion.

These two resistances of horizontal component and viscosity are negative in opposition to the sustentive force which is the vertical component of the normal reaction, and which is opposing the action of gravity. Thus efficiency of design may be expressed,

$$E = \frac{\text{Resistance due to gravitation.}}{\text{Resistance due to velocity} \times \text{head resistance.}}$$

Expressing all the factors of this equation in terms of known

quantities they represent, we get the equation of efficiency and differentiating for maximum value limiting case, equation of least resistance. Next comes the investigation of the flight path as depending upon the factors dealt with in previous equation of least resistance. The angle of attack of a particle of air impinging on the surface of an aerofoil forms the next layer, which is at a greater (dihedral) angle to the horizon than the surface of the aerofoil itself, and thus the next particle of the flow impinges upon a plane of greater inclination than the one above it. Thus a curved section is generated which is a junction of the original angle and cross-section of the supporting member. In this way the necessity of camber surface was explained in an efficient and lucid way.

Lastly, the equation of stability has been found as depending upon factors culminating in the expression, $N \propto \frac{LV^2 a^2 A}{M}$.

Where N is the co-efficient of stability. L distance between C.P. of aeropol and C.P. of tail area. V velocity. a angle of supporting member. A tail area. M mass of aeroplane.

These formulae prove that the angle of trail has no influence on the stability of a well-designed aeroplane, which is a remarkable result in itself. Another point of intense interest is that the co-efficient of stability, N , is directly proportional to the cube of velocity, which has an important bearing on the construction of high-powered aeroplanes. The lecture was illustrated by many slides of bird's wings, aeroplanes, curves for mathematical work, and examples of application of the proved principles underlying this new science.



Edited by V. E. JOHNSON, M.A.

Tractors v. Propellers.

MR. G. P. BRAGG-SMITH sends us the following interesting communication *re* the above: "With reference to the question, tractors v. propellers, I have paid a considerable amount of attention to the relative efficiency of these two types of models, and from numerous experiments I have made I am fully convinced that that type in which the propeller is situated in the extreme rear is the most efficient. It is not necessary to look far to see the reason why the tractor type is less efficient. It is clearly obvious that a considerable percentage of the air displaced by the propeller in this type is thrown back on to the machine, thereby tending to check its progress by setting up abnormal head resistance. This, of course, also applies to some extent to machines of the Farman type, in which, although the main planes are no longer affected by the slip stream of the propeller, the tail and certain parts of the fuselage are still so affected. The most efficient position of the propeller, so far as all my experiments go, is in the rear of the machine, where the air displaced by the propeller does not come in contact with any part of the machine.

"The foregoing not only applies to models but full-sized machines as well, and if experiments with models (of sufficient size) were resorted to for finding relative values both in this instance and others as well, constructors of full-sized machines would, in my opinion, save themselves a considerable amount of trouble and expense.

"I may add that the position of the propeller plays a very important part in contributing to the stability or instability of a machine, and there is a great deal to be said as regards the efficiency of the tail type and small surface forward type of machine, but to go fully into this matter would occupy considerable time and space."

Mr. R. R. Drake (South Chingford, Essex), writing *re* the same matter, says: "I note your invitation to experts and others to give their conclusions upon the subject of tractors v. propellers, and would like, as one of the others, to submit mine along with them. From experiments I contend there is no real difference in the efficiency of similar screws, whether tractive or propulsive, but that any difference which apparently exists arises from a difference in the efficiency of the two systems.

"In the case of a propeller-driven model, one may set the planes to give the finest possible gliding angle, and, in consequence, flight is possible upon a minimum of rubber; whereas, in the case of a tractor-driven model, if this angle be too fine, the additional lift obtained by the main planes from the slip stream of the propeller

results in over elevation, this rendering necessary a coarser gliding angle and, in consequence, more rubber. Actually, in order to get the same results from a tractor as from a propeller, the tractor would need to be more efficient; for not only has it to contend with the inferior gliding angle, but it must drag the model through its own slip stream. By careful design it is possible to minimise this evil, but a tractor-driven model driven by a stated amount of rubber can never do the distance of a propeller-driven one, although it may approach it in duration of flight."

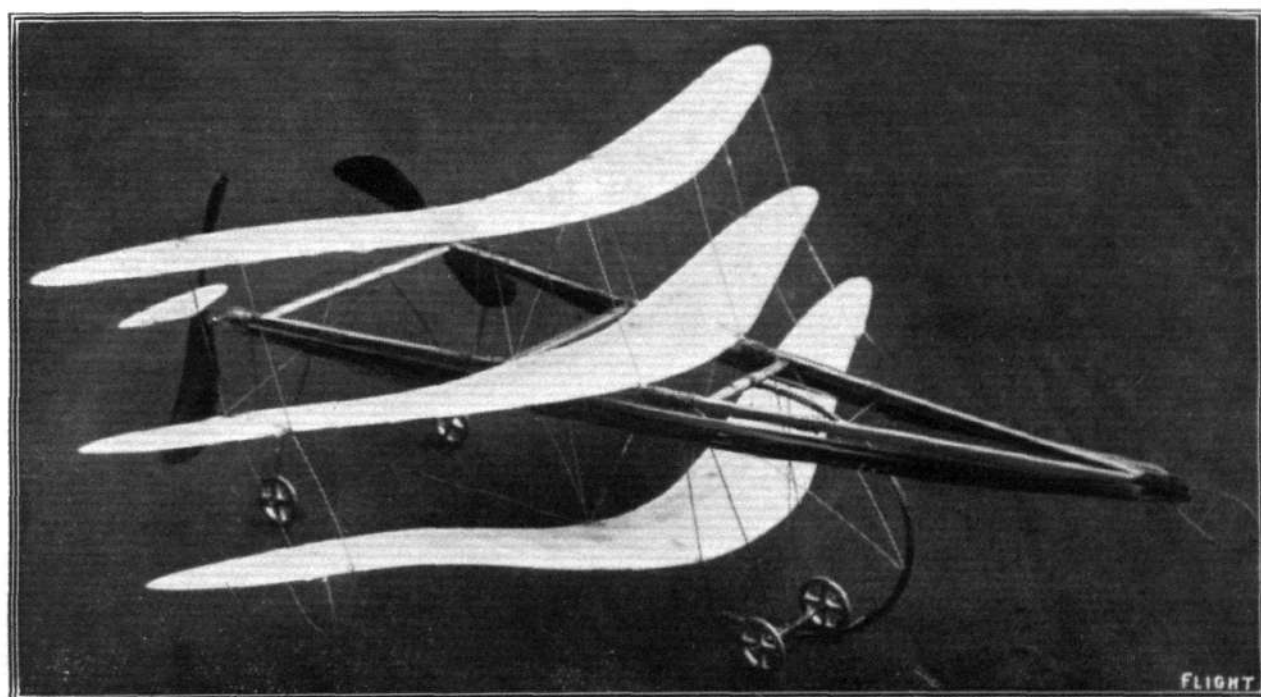
The fact referred to by our correspondents, that in the case of the tractor-type model, it has to be dragged through its own slip stream, is undoubtedly an important one, the effect being that the tractor pulls the machine forward, and the slip stream or reaction drives it backwards. If we keep the angle constant, the power required is proportional to the cube of the velocity; the necessary power to drive all the non-lifting parts of the machine is also proportional to the cube of the velocity.

Let us suppose we keep the weight constant, but double the speed, then the angle of inclination of the planes can obviously be reduced. The necessary power then, so far as mere support is concerned, varies at a lesser rate than the cube of the velocity, but the necessary power to drive the non-lifting parts through the air does not do so. Instead of lessening the angle and keeping the area constant, we can lessen the area of the supporting surfaces and keep the angle constant. Although the tractor-type is undoubtedly less efficient than the Canard, it does enable the span to be reduced, and this type, also, allows the designing of a body of true streamline form offering minimum resistance and possessing minimum weight, which, in the case of the Canard type, is very difficult of attainment, our streamline body, if designed for minimum weight, now being "the wrong way about" to offer minimum resistance. There is, undoubtedly, great scope for both ingenuity and originality in the design of covered-in bodies or fuselages in the case of Canard-type machines.

The whole subject being one of especial interest from the scientific point of view, we shall be pleased to receive further correspondence on the matter.

The K. and M.A.A.'s Programme for 1913.

The programme of the Kite and Model Aviation Meetings of the present season is now ready, and can be obtained from the Hon. Sec., Mr. W. H. Akehurst, 27, Victory Road, Wimbledon, S.W.



MR. N. V. BRASNETT'S ORIGINAL OLYMPIA MODEL.—Note that the planes are staggered in the opposite direction to the usual custom.

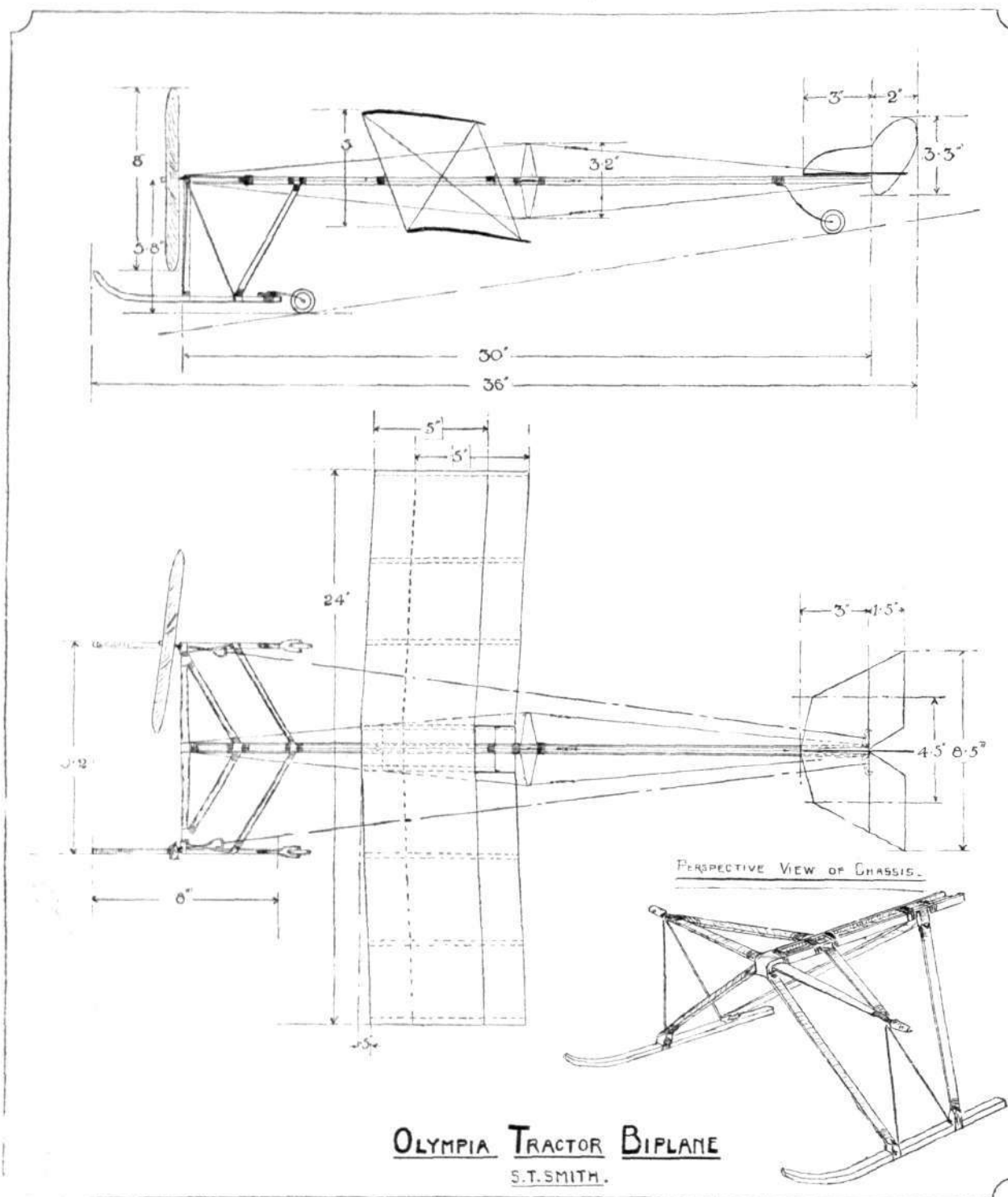
The competitions number 25 in all—viz., 17 for models and 8 for kites, 2 of the latter being for juniors (under 16). Amongst the 17 competitions for models 4 are for hydro-aeroplanes, 1 for ornithopters (wing-flapping machines), 1 for single-screw tractors, 2 for juniors, and 1 for novices, the following definition being given of a novice, viz.: "One who has never won a 1st prize in a competition held under the auspices of the Association," a definition which strikes us as distinctly humorous and not of necessity at all correct.

It will be noticed the number of kite competitions have been

a large number of interesting experiments can be performed with them, but so far as we can gather, generally speaking, such are regarded as belonging to the past of aviation rather than to the present or future.

From an experimental point of view (apart from any other), this is undoubtedly a wrong view to take, and there is much that could be still learnt from a careful study of them.

The majority of the model competitions are for duration and stability, with a minimum weight limit of 4 ozs.



OLYMPIA TRACTOR BIPLANE
S.T. SMITH.

increased as well as those for models. A kite is a captive aeroplane, and as such does undoubtedly come under the head of model aeroplanes, yet here is a most curious fact. Since the model section was started in FLIGHT, viz., a year ago last December, not a single query relative to kites has been received, nor has anything in the nature of an article or an account of any experiments carried out with the same been sent in.

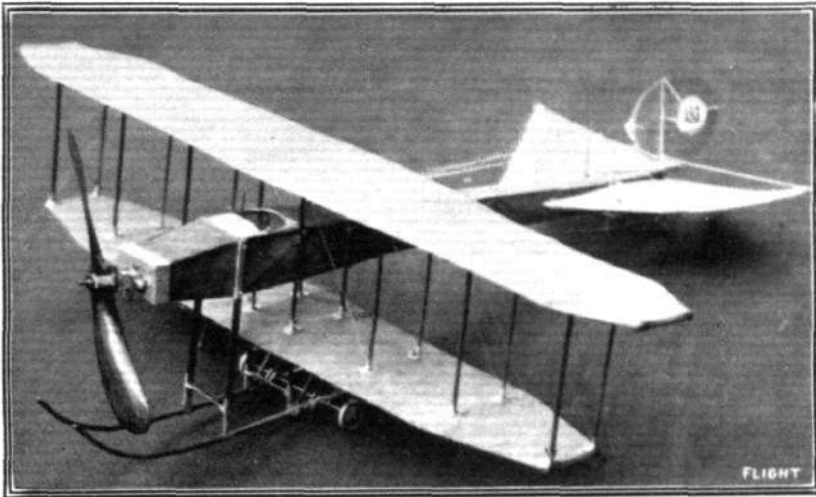
Naturally, under these circumstances, no attention has been given to the subject, and one wonders whether (save in the case of an extremely limited few) any interest is taken in them. Undoubtedly

In the case of the Junior Competitions, which were very poorly patronised last year, all weight limit has been removed, and competitors may submit models of any kind, home-made or purchased.

There are three competitions for single propeller machines—one r.o.g., one hydro-aeroplane and one tractor.

All the competitions save three apparently are open ones; thus, whatever criticism be levelled against the Association's competitions, it cannot be accused of having followed a selfish policy.

On the whole the competitions strike us as being distinctly of the popular or sporting type, with a certain number of those of a more



Mr. R. V. Tivy's Olympia model.

distinctive scientific character. As such they should be well patronized, and if they serve to attract a good amount of "new blood" to the cause, a most useful, and, let us hope, profitable end will have been achieved.

On one point we must express a distinct feeling of disappointment. We should have liked to have seen more junior competitions—certainly not less than four for models, and six if it could be arranged. The senior or open competitions have now become too advanced for the juniors to compete in with any chance of success.

Four gold medals are offered for competition (one for kites), and no less than eight challenge trophies. In four competitions the prizes are of a monetary character, the total amount, excluding a second and third prize, not yet allotted, being £19 5s.

It is, perhaps, quite superfluous to add in conclusion that every-one interested should undoubtedly secure a copy of the above programme without delay.

The Model Engineer Exhibition.

The above exhibition, which is a biennial affair, will be held at the Royal Horticultural Hall from October 10th to 18th. There are to be four sets of competitions, one of the competitions being for aviation models. A special entry form is required. This particular section of the exhibition is being organised by the K. and M.A.A. The manner in which the awards will be made is distinctly novel, and has, we think, much to commend it. One model will not compete against another, but against a certain standard of excellence. In other words, in every case where a model has (in the opinion of the judges) reached a sufficient degree of excellence to be awarded either a silver or a bronze medal, such will be awarded irrespective of the number given. Certificates of merit will also be given to those models which are commended by the judges, but which may not be good enough for a higher award.

The exhibition is one which is always well patronised, and the awards given have obtained quite a high reputation in the model world. Under such circumstances we trust that as many of our readers as possible will be among the exhibitors.

Mr. S. T. Smith's Olympia Tractor Biplane.

We give this week scale drawings and the following description of the above model, kindly supplied us by Mr. Smith: "The main

planes are constructed of split bamboo about $\frac{1}{8}$ by $\frac{1}{2}$ in. The joints are glued, and bound with silk thread. The angle of incidence of the main planes is 4° ; the top plane being staggered 1.9 in. in advance of the lower. Both are of the same dimensions—5 ins. by 24 ins.; combined surface, 240 sq. ins.

"The tail plane, fin and rudder are constructed of 18-gauge steel wire, and are covered with Bragg-Smith proofed silk, as are the main planes. The surface of the tail plane is 25.55 sq. ins., that of the rudder about 5 sq. ins., and that of the fin about 3 sq. ins.

"The motor rod is silver spruce I section, and is stayed by means of double king posts and very fine piano wire.

"The skids are of birch and the chassis members of ash (streamline section), the joints of the same being constructed of thin sheet iron clips, bound with wire, which is afterwards soldered. The propellers are of birch, built up of three layers, diameter 8 ins., pitch 16.5 ins. On the model as exhibited they were each driven by eight strands of $\frac{1}{8}$ by $\frac{1}{2}$ in. rubber. The weight of the complete model was 8½ ozs., the total weight of the rubber being 1½ ozs.

"Up to the time of writing the model has not yet been tried in actual flight, and the staying of the motor rod will have to be altered as it has a tendency to whip, and wooden struts have been substituted for the original wire ones between the main planes, as I found the latter did not possess sufficient rigidity.

Wheels for Club Glider.

We have received the following communication from O. Hamilton, Junr., the Hon. Sec. of the Stony Stratford and District Kite and Model Aeroplane Association (Old Stratford, Stony Stratford), and we publish the same as being the best means to further the purpose our correspondent has in view:—"I have for some time past been vainly endeavouring to get a pair of wheels for our club glider, which is of the tail-first monoplane type, but have been unable to obtain any suitable ones. I have tried one of the glider building firms for a pair of second-hand ones, with the sole result that they fear they are too heavy for our use. Do you think you could possibly put us in touch with some sportsman who has discarded a pair of wheels without tyres as no longer fit for power use, who would assist us out of our difficulty, as we cannot get in any practice until we are in possession of wheels, as neither of our grounds possess a good slope, so we are in a difficulty without wheels in getting up sufficient speed for flight?

Replies in Brief.

L. MINOR.—We shall be pleased to make use of your communications in due course. Yes! Try two steps—the float is quite useless as it is—we have tried a similar one.

J. MOSS: We have not forgotten your notes; and will use in due course; but we have considerable matter in hand, and the subject to which your notes refer has only, we are afraid, a strictly limited interest.

H. C. H. BRACEY, H. B. BROWN, T. P. SCALAND: The account of your experiments is very interesting, and we will endeavour to make use of them later on. You will find all your trouble re float leakage disappear if you use Bragg-Smith varnish.

PAWLYN-BAZELEY.—You will find what you require in "Flying, and Some of Its Mysteries." See advertisement.

KITE AND MODEL AEROPLANE ASSOCIATION.

Official Notices.

British Model Records.

Hand-launched	Distance	A. E. Woollard	477 yards.
	Duration	A. F. Houlberg	89 secs.
Off ground	Distance	G. Rowlands	232 yards.
	Duration	A. F. Houlberg	51 secs.
Hydro, off water	Distance	F. Whitworth	37 secs.
	Duration	F. G. Hindsley	173 yards.
Single-tractor screw, hand-launched	Distance	J. E. Louch	44 secs.
	Duration	J. E. Louch	40 secs.

Affiliation.—An application for affiliation has been received from Aero Models Association (Northern Branch).

Official Trials.—These trials take place on Wimbledon Common this afternoon, Saturday, at 3 p.m., on the Plain, Wimbledon side of Windmill.

Competitions.—All entries for Model Engineer competition must be sent in to-day, 31st, last day for receiving same.

Empire Day Competitions at Park Royal.—On Empire Day, May 24th, the Association held its first official kite competition at Park Royal, for prizes presented by Messrs. Brooke and Westhorp, of Brookite fame. It was not altogether an ideal kite day, there only being a very light breeze. However, a good show was made, only three falling to ground during the time, thereby disqualifying themselves. The result was: 1st, J. Warwick, with 267 marks, winning Brookite value 35s.; 2nd, A. Swan, with 240 marks, winning Brookite value 25s.;

3rd, A. J. Spiers, with 230 marks, winning Brookite value 15s.; 4th (tie), R. Fox and C. Smith, with 236 marks. Judges: W. B. Brooke, Esq., and the hon. sec.

Model Competition, Welsh Harp, Herdon, on Saturday, June 14th, at 3 o'clock, entries close last post Saturday, June 7th, for hydro-aeroplanes rising off the water (members only). Prizes presented by the President: 1st, £3 and certificate of the Association; 2nd, £2 and certificate of the Association; 3rd, £1 and certificate of the Association. Tests: (a) duration of flight; (b) stability. Maximum marks, 100; 75 for duration, 25 for stability. Rules: 1. Competitors must be at the judges' flag at 2.45. Any competitor not present at that time will be disqualified. 2. Models must not weigh less than 4 ounces. 3. Competitors will be allowed to make reasonable repairs at the discretion of the judges. 4. Competitors will not be allowed to replace any part without the permission of the judges. 5. Each competitor is entitled to three trials. 6. All competitors must launch their machines in the same direction. If less than 5 starters, the third prize will be withheld. Neither the Kite and Model Aeroplane Association, nor owner of the "Old Welsh Harp," will be responsible for any damage done by, or to, models. Non-competitors, admission to the grounds, 3d., payable only at gate.

Scratch Model Competition for Models Rising off Ground.—This was a huge success, some splendid flying being seen. The results were, viz.: 1. A. F. Houlberg, K. and M.A.A., 79 secs.; 2. C. Dutton, Paddington Club, 58 secs.; 3. A. Cannell, Paddington Club, 52 secs.; 4. J. Louch, N.E. London, 51 secs.; 5. W. J. Williams, K. and M.A.A., 50 secs.; 6. T. Carter, Paddington Club, 45 secs. Some fine exhibition flights were given by Mr. J. Louch with his tractor r.o.g., doing a duration of 60½ secs.

Rising-off-Board.—A special rise-off-board has been presented to the association by Messrs. Bonn and Co., of New Oxford Street, W. It was tried on Saturday for the first time and gave utmost satisfaction, and the association thanks them for their gift.

27, Victory Road, Wimbledon, S.W.

W. H. AKEHURST, Hon. Sec.

AFFILIATED MODEL CLUBS.

CLUB reports of chief work done will be published monthly for the future. Secretaries' reports, to be included, must reach the Editor on the last Monday in each month.

Aero-Models Assoc. (N. Branch) (25, CHURCH CRESCENT, MUSWELL HILL, N.).

June 7th.—Second monthly competition, handicap duration, for prize of goods value 3s. 6d. June 14th.—R.O.G. practice. June 21st.—Open r.o.g. duration contest (particulars in FLIGHT, June 14th, 1913). June 28th.—Practice, tractor day. Practice each week at Palmer's Green Ground.

Monthly Report.—At first monthly competition, April 19th, under bad weather conditions, Mr. Ross judging, Mr. Fletcher won the prize with flight of 47 secs., Messrs. Rogers and Partridge running him very close. During the month a good deal of flying has been done by a few enthusiasts. Seven tractors have been in evidence. These included Messrs. A. D. Trollope, new r.o.g. 0-1-1-P₂ (good climber); F. G. Hindsley (2½-oz. tractor and tandem mono., 1-1-0-P₂ type), who obtained 60 secs. flight, and has been trying different propellers on his 39-in. tractor; G. O. Partridge's 1-1-0-P₂ consistent average of 40 secs. Others doing good work were: Mr. Pidsley (Antoinette-type tractor with high-aspect ratio), Mr. A. D. Trollope (38-in. 0-1-1-P₂), durations, average 50 secs.; Mr. Whyte (loaded elevator-type), Mr. Reed (same type), Mr. R. S. Rogers, with 12-oz. r.o.g. biplane (36-in. span), which rises in 4 yards, and climbs readily, and his light 0-1-1-P₂, besides experimenting with hydros. He finds a stepped float much less "sticky" than a plain one. The annual general meeting was held at 15, Highgate Avenue, N., on May 20th. Mr. M. B. Ross, who has so ably conducted the affairs of the club for the past two and a half years, stated, with regret, that owing to pressure of business he would be unable to spare the time to carry on his past duties as secretary. On Mr. R. G. Corder's motion, a vote of thanks to Mr. Ross was passed with applause. The new officers of the club were elected as follows:—Treasurer, Mr. G. W. Pidsley; secretary, Mr. F. G. Hindsley, and a committee of seven, consisting of the above officers and Messrs. R. G. Whyte, H. D. Murray, M. B. Ross, R. L. Rogers, and R. G. Corder (next committee meeting June 5th, at 8 p.m., at 25, Church Crescent). It was decided to affiliate the club to the K. and M.A.A., and the programme for the coming year was discussed. The secretary will supply all particulars to those interested in model work. June 1st opens a new club year, and subscriptions (2s. 6d. per annum) should be sent to the hon. treasurer, Mr. G. W. Pidsley, at 64, Milton Park, Highgate, N. Prospective members, and all interested, should visit the club's flying ground, Bishop's Avenue, East Finchley, N., for the open competition on June 21st.

Bristol and West of England (Model Section) (3, ROYAL YORK CRESCENT, CLIFTON). Affiliated as a Model Club with the K. and M.A.A.

A MODEL flying meeting will be held on the Durdham Downs (top of Fountain Hill) on Saturday, June 7th, at 4 p.m., weather permitting.

Monthly Report.—A model hydro-aeroplane contest, organised by the Bristol Aero Club was held on May 17th at Portishead Marine Lake. The competitions, which included events for land machines, both hand-launched and rising from the ground, were judged by Mr. P. A. Thompson, hon. sec. of the aero club. Messrs. T. W. Egerton and H. Dobree Leopold officiated as timekeepers, and Mr. R. V. Tivy, hon. sec. model section, as steward. Many excellent and spectacular flights were made, and the stability shown by the models in a strong and gusty wind was most remarkable. Great amusement was caused by the abrupt vol piques made by one or two of the models, and many of the most successful flights were terminated by dives into the lake. All the prizes were won by members of the model section of the Bristol Aero Club. The visitors from Bath, however, came in a very good second. The awards were as follows: hydro-aeroplane contest—1st, R. T. Howse, 13 secs.; 2nd, W. A. Smallcombe. Rising from the ground contest—1st, E. Martin, 24 secs.; 2nd, L. S. White, 17 secs. Hand-launched contest—1st, R. T. Howse, 42 secs.; 2nd, N. G. Stephens, 35 secs. Several flights of over 1,000 ft. were made, and numerous spectators were rewarded by such an exhibition of model flying as has rarely been witnessed under unpropitious weather conditions.

Hendon and Districts Model Ae.C. (3, ARGYLE RD., W. HENDON)
The ballot for the Committee for the next three months will shortly be taken.

Monthly Report.—A good amount of flying has been done during May and the latter end of April, the chief events being the "best all-round flight" contest (for hand-launched machines), and the duration (r.o.g.) competition. The former contest, held on April 27th, resolved itself into a struggle between H. E. Fletcher and E. Mitchell. The two competitors obtained an equal number of marks in the actual competition, and consequently were allowed another attempt each. Mr. Fletcher then taking the lead by three marks. Mr. Mitchell took second prize, and the third was won by Mr. Lawrence. Mr. Fletcher's model was of the 0-1-1-P₂ type, with a rectangular wing of rather small aspect-ratio. This model gained marks in duration and landing, while Mr. Mitchell's model (0-1-1-P₂ with tapered wing) gained most marks by its excellent stability and altitude. The duration (r.o.g.) contest, held on May 24th, attracted a fair number of competitors. First prize was taken by Mr. Hedges, who flew an 8½-oz. leading-elevator type monoplane, with tapered and upturned wing-tips. The model is driven by two 9-in. propellers, with six strands of ¼-in. rubber to each. The winning flight, of 37 secs., was an extremely spectacular one, the machine, launched with the wind, rising to a great altitude, and finishing with a long glide. Mr. H. W. Hills obtained second prize with 33 secs. (0-1-1-P₂-type). Third prize went to M. H. G. Hills, 27 secs. (1-1-0-P₂). During the afternoon, Mr. H. E. Fletcher put the club duration r.o.g. record up to 41 secs., with a tailed monoplane, with rectangular wing, fitted with an extremely light chassis, and Mr. F. V. Short established tractor r.o.g. records of 19 secs and 76 yards. Messrs. Short and Lawrence have both been very successful with r.o.g. machines, and the latter also with hand-launched duration models. Mr. B. K. Johnson has been flying a tractor r.o.g. machine, and Mr. F. Haywood has obtained many good flights at good altitudes with a single-screw model, with a Rumpler-Taube shaped plane.

Leytonstone and District Aero Club (64, LEYSPRING ROAD.)

FLYING as usual on Saturday, May 31st, at 3 p.m. Sunday, June 1st, at 6.30 a.m., model yacht pond. At 10 a.m., flying near Brickfields.

Monthly Report.—During the last month, although comparatively few members have been flying, a fair amount of work has been done, and quite a lot of models are in hand. Members have been meeting every Sunday at

6.30 a.m., and this will be continued through the summer. Messrs. H. Bedford and F. Grattan have spent a lot of time on hydros., and have constructed a biplane with Handley Page wings of 36 in. span. The fuselage is 36 in., and the total weight is 13 ozs. Up to the present it has not been very successful, but it has not yet been thoroughly tested. This model is fitted with a single central float and wing balancers. Messrs. Bedford and Grattan have also introduced a new type of model, a single-propeller canard r.o.g. The type seems more difficult to get off ground than the twin-propeller type. Mr. F. Hawthorn has been flying several small tail type r.o.g.s. He is quite an expert on these small models, and they are most reliable little flyers. Messrs. G. Hawthorn, T. Jack, L. McCulloch and F. Woods have also been out on several occasions. Altogether, those who have worked have every reason to be satisfied, but it is hoped that the month of June will see a decided advance on the earlier part of the year. The secretary wishes to remind members that subscriptions for June are now due. Several are outstanding for April and May. The club is now affiliated to the K. and M.A.A.

N.E. London Model Ae.C. (57, KING SQ., GOSWELL RD., E.C.).

Monthly Report.—The work of this club has been very promising during the past month, off-ground models being chiefly in evidence. The club are holding an off-ground competition for last year's members, the prizes being 2 medals, 1st and 2nd. The winner is the one who makes the best off-ground duration before the end of June. Best durations, so far, are B. H. Longstaffe, 55 secs., and H. Bond, 50 secs. Mr. J. E. Louch has been doing some fine work with his "record" tractor during the last month, making scores of flights, off-ground, all being well over 40 secs. (the present record). At Park Royal, on May 24th, he made r.o.g. tractor flights of 51 secs. and 60½ secs., timed by Mr. W. H. Akehurst. Messrs. Burton, Marmin, Vause, Dore, and other members still going as strong as ever.

Paddington and Districts (77, SWINDERBY ROAD, WEMBLEY).

SATURDAY, May 31st, r.o.g. and other practice in temporary field, kindly provided by the owner, Mr. Perkins, of Greenford Green, until grass is cut on usual ground.

Monthly Report.—On May 3rd, the hand-launched duration handicap was won by Mr. C. C. Dutton (scratch) with an excellent flight of 79 secs., 2nd prize being taken by Mr. F. W. Johnson, who obtained 65 points. H. Woolley, 60 points, was 3rd, and T. Carter, 58 points, 4th. On May 10th, an r.o.g. competition was held, and these results, together with later ones, show that this club is now well to the fore in r.o.g. models. The 1st prize was well earned by Mr. A. Cannell with a duration of 50½ secs., and Mr. C. C. Dutton won 2nd prize with 57½ secs. Among the "also flew" were M. Levy, 27½ secs.; H. Woolley, 22½ secs.; and W. Evans, 18 secs. On Whit Monday, the club gave a display of model flying at the opening fete, held at Swiss Cottage, Watford. The novices' competition for aeromodelists residing in Watford, resulted in a match. Master E. L. Hill (won 5s. prize) beat Master Reginald Ellis by 6 secs. Ten members of the club took part in the hand-launched duration competition, for which a first prize of 10s. and a second prize of 5s. was offered. The durations were as follows:—Mr. A. Cannell, 55 secs.; C. C. Dutton, 47 secs.; T. Carter, 40 secs.; R. Bird, 40 secs.; C. Levy, 33 secs.; H. Woolley and F. W. Johnson, 31 secs. Variety was added to the display by Mr. H. Weston, by flying several different types of models, and by Mr. H. Woolley, who flew his 12-oz. monoplane over the tallest trees with the greatest ease. An excellent tea and the prizes, &c., were kindly provided by Mr. Newman, of Watford. The club is open to accept other similar engagements during the summer. On May 17th, another hand-launched duration handicap was held. First prize, 5s., was taken by Mr. R. Bird, who scored 82 points. Mr. H. Woolley won 2nd prize, 3s., with 76 points, and Mr. W. Evans, 3rd prize, 2s., with 75 points; A. Cannell scored 73 points; C. C. Dutton, 71; F. W. Johnson, 60; M. Levy, 46; and H. Weston, 33. Mr. T. Carter acted as competition timekeeper. On May 24th, the club played a very prominent part in the model aeroplane display in conjunction with the parent body, the K. and M.A.A., at the Empire Day Flying Carnival, held at Park Royal. In the scratch r.o.g. sweep-stake competition, the 2nd prize, 5s., was taken by Mr. C. C. Dutton, with a duration of 58 secs.; the third prize, 2s. 6d., being secured by Mr. A. Cannell with 52 secs. Good performances were also done by Mr. T. Carter, 45 secs., and Mr. M. Levy, 44 secs. Late in the afternoon several models were completely destroyed by a full-sized Bleriot alighting upon them. Others had miraculous escapes from injury. The club was fortunate in not being the owner of any of the smashed models.

Wimbledon and District (59B, ST. PHILLIPS RD., LAVENDER HILL).

FLYING Saturday and Sunday afternoons at 3 p.m.

Monthly Report.—The number of members has been greatly increased during the past month, and after May 31st, there will be a small entrance fee. A great deal of flying has been done, and many new machines have been seen, chiefly r.o.g.s. Williams has had out his r.o.g. monoplane a good deal, and obtained 2nd prize in a sweepstake on Whit-Monday. Other machines of this type have been flown by Laing, Easdale, Whitland, Wilkinson, and Chown. Several new tractors have been flown, one which attracted great attention being that of Whitworth, with which durations of 45 secs. were obtained. Easdale and Laing also have had out tractors, the latter obtaining durations of over 30 secs. Hand-launched machines have not been neglected, however, and the club record for this class has been raised to 62 secs. by Powell. Members will oblige by bringing up their subscriptions next week.

UNAFFILIATED MODEL CLUB DIARY AND REPORTS.

Birmingham Aero Club (8, FREDERICK ROAD, EDGBASTON).

Monthly Report.—Bad luck has been experienced with the glider which has been rebuilt, as last week-end, whilst being erected, a gust of wind caught the glider and turned it over, breaking two of the main spars. However, it is hoped to have this repaired within a week or so. A small trophy shield has been given for competition by Mr. R. Platts, the conditions of which will help to the standardising in some form of the various components of models. The competition is to take place monthly, the first being on June 28th. Entrance fee 6d. divided into first, second and third prizes.

Gospel Oak and Districts (5, VICARS ROAD, N.W.).

Monthly Report.—This club has recently been formed with the object of bringing together practical model aeroplane constructors, who reside in the North-West of London. Members entertain large and appreciative audiences on Hampstead Heath every Sunday, with some long and high flights. The competition for the pair of carved propellers, presented by Mr. Bonham for the longest distance, had to be postponed last Saturday owing to the crowds, but will be run off to-day (Saturday). The club duration—held by Mr. Curtis, with a Hall-Curtis mono.—of 43 secs., was raised by Mr. Hall, also with a Hall-Curtis monoplane, to 57 secs., altitude being a marked feature with this machine. Mr. Frost out with the Star machines, getting in some fine flights with single screw, Mr. Burchel with single-screw machines, Mr. Gibbs doing long and high

flights, Mr. Essex some fine long distance flights. Messrs. Cart, Ballinger, Jones and Bond getting good all-round flights. It is pleasing to note that the younger members are improving greatly. Anyone wishing to join the club, write to the hon. sec., Mr. E. J. Curtis, as above.

Manchester Model Ae.C. (14, WARWICK RD. N., OLD TRAFFORD).

MEETINGS as usual every Saturday during the month, at the Trafford Park Aerodrome.

Monthly Report.—Much progress has been made during the past month, so that now the club is looking forward to a successful season. Tractors and r.o.g. models are now greatly in vogue and some very good results have been obtained with them. Messrs. Monteiro and Gilbert have had excellent flights with their tractors, and they have kept very close together in setting up records for the club, first one and then the other taking the lead, but now the records fall to Mr. Monteiro, whose model made an excellent straight flight of 176 yards, and a duration of 25 secs., and as each of these models have a chassis they will soon be tried off the ground now that they fly so well hand-launched. Mr. Watson holds the records for r.o.g. His model rose off the ground at its first attempt and made a flight of 14 secs. and 40 yards. A broken chassis put the model *hors de combat*, so that now a stronger chassis has been made and better results are hoped for next time. With hand-launched models—Mr. Jackson making a flight of 319 yards in the rain and a gusty wind, and Mr. Watson a flight of 60 secs., his model quickly climbing to a height estimated at over 180 ft., and remaining there until the elastic ran out, it taking over 15 secs. to glide down. Most of the members are busy constructing tractors, so that it is hoped to do more scientific work in the future than has been done in the past, as all the work has been done with single propeller machines. It is hoped shortly to hold a handicap competition for hand-launched r.o.g., and tractors. A flying meeting will be held to decide the handicap. Members please note.

Reigate, Redhill and District (8, BRIGHTON ROAD, REDHILL).

Monthly Report.—The competition for the challenge cup given by the president, Col. R. H. Rawson, M.P., was held on May 3rd in a nasty wind and some rain; r.o.g. biplanes were flown (minimum weight 8 ozs.), marked on distance and duration. Mr. W. Key, who must rank as an aeromodellist of the first water, won it after a close contest with Mr. J. W. Burghope, who was second. Mr. Key's distance was 253 yds. and duration 42 secs., the machine climbing to about 100 ft. down wind. It was a magnificent wind-fighter, and weighed 9½ ozs. Mr. Burghope flew a much more lightly-loaded model, which circled owing to accident to rubber. It was forced along by sheer power, and was fairly stable. Its duration was 40½ secs., and distance 220 yds. in spite of circles. Mr. W. H. Norton was third with a very lightly-loaded 'bus, which flew with remarkable stability. It did 126 yds. and 21½ secs. Mr. J. L. Sutton's machine resolutely refused to fly till the competition was over, then it did 215 yds. Messrs. M. H. Wilson and J. M. Hoyle both smashed good machines, the former's having previously covered 210 yds. On the same day, Messrs. N. M. Hooton and Burghope both did over 500 yds. with hand-launched mono-sticks. The latter also a magnificent flight, at over 100 ft. up, with a fast 7-oz. r.o.g. mono. The cup was presented to Mr. Key by the chairman, Mr. W. H. Norton, at a general meeting in the lounge adjoining the workshop held in the evening. On various dates during the month the following flying was done: Mr. W. H. Norton flying the "Olympia Sausage," up well. Mr. W. Key 50 secs. with racing H-L. His 9½-oz. biplane (r.o.g.) out several times, a superb flyer and a grand climber; up 150 ft. often. Mr. J. L. Sutton, usual variety of canards, including a 20-oz. bus, a terrifying flyer, and his 9-oz. biplane "some" flyer. Mr. J. W. Burghope, 42 secs. with 9½-oz. r.o.g. biplane, combined with some 250 yds. Mr. N. M. Hooton doing 200-300 yds. with 8-oz. r.o.g. mono., and up to 110 ft. with hand-launched. Mr. J. M. Hoyle, great flights with r.o.g. mono. (6-oz.) terrific speed 200-300 yds. Messrs. Peters, Hirst and Oram all with hand-launched.

Scottish Ae.S. ("ROCHELLE," LINESIDE AVENUE, RUTHERGLEN).

MAY 21ST, practice meeting at Maxwell Park; June 7th, hydro-aeroplane meeting at Whiteinch Pond; June 14th, practice meeting at Maxwell Park; June 21st, practice meeting at Maxwell Park; June 28th, hydro-aeroplane meeting at Whiteinch Pond.

Monthly Report.—On May 3rd, the secretary paid a visit to Stirling to hand over a model presented to the scouts by Mr. Gordon. As the afternoon was very wet, the time was spent in a local drill hall instructing the boys in the art of model flying. This is a new movement with the scouts here, and we are doing all we can to forward and help its progress. The secretary will be pleased to arrange demonstrations for scoutmasters will communicate with him. Owing to the stormy afternoon there was no meeting at Maxwell Park. May 10th a meeting was held at Maxwell Park under trying conditions, the wind being strong and gusty. Mr. Balden had out his twin-tractor r.o.g., and was unfortunate to get smashed up while getting the machine tuned up. Mr. Foster had out his hydro., but had very little success owing to the strength of the wind. The 17th we again visited Maxwell Park, high winds again prevailing. Mr. Balden had his kite with him, which he was unfortunate to lose owing to the line breaking when the kite was well up. Mr. Foster endeavoured to make a few flights with his hydro. but had to give up, as immediately the model was launched the wind upset it. No meeting 24th on account of conditions prevailing. This has been another disastrous month so far as outside work has been concerned, but work has been progressing at the workshop. Several of the members are constructing new designs of floats which it is hoped will prove more successful. As the workshop has been re-taken for another year, the committee again appeal to those interested to join the club, as it is only by receiving practical support that this can be carried on, and an invitation is given to all to inspect the premises at 18, Holland Street, Glasgow. The subscription is: seniors, 7s. 6d.; juniors, 4s.

Sheffield Model Aero Club (35, PENRHYN ROAD, SHEFFIELD).

Monthly Report.—May 3rd, members in good numbers at Standhouse Aerodrome, Intake, but the weather was very unsuitable. Exciting contests were witnessed for the Colver Cup for r.o.g. machines. Mr. G. H. Dewsnap (the holder for six months) was leading with a flight of 294½ ft. when victory was snatched from him by Mr. J. P. Worrall with a fine flight of 677 ft. Mr. Bagshaw and Mr. C. F. W. Cudworth officiated as the judges. May 12th, in morning, first event, for the President's Challenge Cup for hydro-aeroplanes, held at a pond lent by Mr. Brightmoore, Tinsley. The machines had to combat with a deep bank and cross-air currents. Only one machine got off the water, viz., Mr. J. P. Worrall's, but it only flew for 13 secs. duration. Mr. Worrall was awarded a set of floats, presented by Mr. Colver, for the best attempt for the cup. After the event was over, the members made their way up to the aerodrome, when Mr. G. H. Dewsnap's full-size biplane made some very fine towed flights, the least being 125 yards straight, at a height of from 5 ft. to 10 ft. Mr. R. E. Rayner broke the club and Sheffield record for distance with a fine flight of 1,237½ ft., Mr. G. Askew doing 1,114½ ft. May 13th, Mr. G. H. Dewsnap had his glider out, and two of Mr. Dunn's grandchildren (combined ages nine years old) went up to a height of about 20 ft. This is the first model aero club in Sheffield to possess an aerodrome, hangar, and a full-size biplane glider built

by one of its members, besides a workshop and clubroom in the centre of the city, where all kinds of experiments are carried out. The club at the present time holds all records in Sheffield. Anyone desirous of joining the club should communicate with the secretary at above address.



The glider of the Sheffield Model Aero Club. Mr. S. H. Dewsnap, the constructor.

S. Eastern Model Ae.C. (1, RAILWAY APPROACH, BROCKLEY).

FLYING, May 31st, at Grove Park, 5.30 to 8.30 p.m.; June 1st, at Blackheath, 7.30 to 10 a.m., and at Mitcham, 2.30 to 5.30 p.m.

Monthly Report.—The past month has proved to be one of exceptional importance, and the club has made rapid progress. Mr. N. V. Brasnett's letter with reference to the more scientific aspect of model aviation has made a good impression on the members of the S.E.M.Ae.C., and the excellent work in this direction already accomplished by the club is likely to be followed by still greater efforts. This will be amply demonstrated during the next few weeks, now that the models for the forthcoming competition are nearing completion. In this event—the first contest for the "South-Eastern Trophy"—models must rise from and alight on both land and water, and anyone not fully acquainted with the rules should refer to page 450 of FLIGHT, April 19th. Several models have already been tested, and a splendid contest is confidently anticipated. In the early part of the month a visit was paid to the Hampton Wick works of Messrs. T. W. K. Clarke and Co., and the various processes of model construction were seen. Planes, fuselages, propellers (carved and bent wood) were being made in large quantities, also acetylene-welded sockets, and last, but by no means the least important, we were shown the construction of those deservedly popular disc wheels. Other clubs would, we feel sure, greatly benefit by a visit to these works. A great amount of outdoor work has been done, especially by Mr. H. H. Groves, whose steam-driven biplane, recently exhibited at Olympia, succeeded in making some capital flights of well over a quarter of a mile. The success attained by Mr. Groves has acted as a tonic to other members, and several new power-driven models will make their appearance in due course. Mr. A. D. Nicholls has been flying a tractor biplane, a similar type monoplane, and a twin-propeller "racing" monoplane fitted with one of the new "G.B." double-surface planes, which appear to be remarkably efficient, although by no means light when compared with single-surfaced planes. This latter model immediately justified its existence by flying out of sight, as did the hon. sec.'s 2-oz. monoplane, which had made numerous flights of over 80 secs. duration. Mr. R. W. Prance and Mr. R. Halnan were flying tractor monoplanes, the former experimenting with his Deperdussin fitted with a fuselage partially enclosed. Better results were obtained, however, with the body left open. Mr. C. A. Rippon has been very successful with his numerous r.o.g. twin-propeller and tractor monoplanes, as also was Mr. E. Campbell. The large tractors flown by Mr. A. F. Chinnery and Mr. G. H. Westwood have repeatedly made an excellent showing, and have proved to be very reliable. Mr. G. R. Eland has been flying a duration model, and Mr. R. E. Attwooll has experimented with a "flying-boat," and further tests with this model will be eagerly awaited. Mr. F. Plummer's enclosed body biplane has been very much in evidence at Blackheath and Shirley, making several flights of over 300 yards. Dr. G. I. McMunn, with his distance models, obtained some splendid flights; on one occasion one of these machines made a flight of approximately ½ mile. Mr. S. E. Grimstone and Mr. G. Brown with twin-propeller models, and Mr. W. A. McLaughlin with a single-propeller mono. have made many exhibition flights. Messrs. Sutton and Lee have been testing their machines, and Mr. L. B. Morris had some nice flights with several models. Mr. C. H. Morgan and Mr. W. G. Billingham are busily engaged on the construction of their "r.o.g.-hydro" models for the South-Eastern Trophy Competition. The secretary is pleased to notify members that the S.E.M.Ae.C. is the fortunate recipient of the full-size monoplane (less engine) as per Messrs. T. W. K. Clarke and Co.'s generous offer published in a recent issue of FLIGHT. There is still room for more members, and the hon. sec., Mr. A. B. Clark, will be pleased if anyone interested in model aviation will communicate with him at the above address, when full details of membership will be forwarded.

The Croydon and District Branch (136A, HIGH STREET, CROYDON). June 1st, a competition for r.o.g. machines (duration) will be held at Mitcham Common at 4 p.m.

Monthly Report.—May has been a very busy month for members. Many models have been constructed and a lot of flying has been done. R.o.g. machines.—Messrs. Smith, Bell, Streeter, Quick, Carter, and Hart have all been out with these models and had good results. Hydro models.—Messrs. Bell, Carter, Streeter, Hart, and Minot have been busy with this type. Mr. Bell has been notably successful, and has had several very pretty flights, his model alighting in the water beautifully. Mr. Minot's model has made several "hops," and should be a splendid flyer when tuned up. The floats do not seem to be quite rigid enough. Mr. Hart made his floats too big, and could not get the necessary speed on the water to rise off. Mr. Jannaway has visited us on several occasions, and had made many excellent flights with his hydro.; his model rises with a very short run. Mr. Pavely has had some fine "distance" flights with a racing model. His flights average about 50-60 secs. for about 500-600 yards, and she flies on four strands of ½-inch rubber. Mr. 'ell has made a large biplane (without a chassis), which flies beautifully. Members are now busy constructing hydro. models for the S.E.M.Ae.C. "trophy," and the competition promises to be a very excellent one from both a competitive and scientific point of view.

Windsor Model and Gliding Club (10, ALMA RD., WINDSOR).

Monthly Report.—This month has seen a welcome recrudescence among the modellers, and the list of completed models includes 6 tractors, 2 biplanes, and 1 hand-launched monoplane; 2 ornithopters are also being experimented with. Almost every available minute has been devoted to the glider, with the result

that it will be brought out in two weeks' time. Some very novel fittings have been used, and these will be illustrated later. The method of covering the planes has worked out very successfully. The fabric is stretched on formers corresponding to the camber of the planes, thus taking all the strain while the beads are applied. The latter are fillets of wood half-round in section and about $\frac{1}{4}$ in. wide, these being fixed to each rib. The weight is working out quite in accordance with the estimates, the machine at present being a pound on the right side. At a recent meeting affiliation with the Kite and Model Aeroplane Association was discussed, and it has been decided to forward an application. The club note with approval the more scientific basis of this year's competitions, and most of the members have decided to compete.

CORRESPONDENCE.

Rules Relating to Committee Elections

[1760] I have read your editorial note on my letter on p. 422 of your issue of the 12th ult., and regret to see that you prefer the old method of balloting, though you do not claim any experience of the method just adopted, and condemn it because you think it "may come to abuse." I claim experience of both systems, and as the result unhesitatingly condemn the old one, which in several well-known cases (the I.C.E. as an example) prevents the members exercising their moral right to elect whom they please to a Council. Conversely I know of no case of "plumping" under the new system. But even suppose that a large number of members "plump" for one candidate—i.e., in the sense that they each give one vote for him only and for no other candidate. To get him elected their number would have to be great, and if so large a number of members were so anxious to get that candidate elected, and do in fact elect him, then who should say them nay?

With regard to canvassing. It is diplomatic not to prohibit it, as should it be prohibited it is practically impossible to know whether the rule is being obeyed.

If you or any of your readers are interested in this matter, and desire to see an absolute arithmetical demonstration of the fact that voting for a fixed number entirely eliminates the principle of the members' free choice, they will find it in my letter on page 147 of *Engineering* of January 31st, 1908.

I am glad to say that the following important societies, among others, have the rational system of balloting, i.e., they do not compel their members to vote for a fixed number:—

American Society of Civil Engineers.
Iron and Steel Institute.
Inst. Mining and Metallurgy.
The Society of Engineers (Incorporated).
Canadian Society of Civil Engineers.

A. S. E. ACKERMANN.

[We refer to the above editorially elsewhere.—ED.]

Gliding Butterflies.

[1761] About six weeks ago I was surprised to see a butterfly gliding. It glided for 30 or 40 ft., then after perhaps six or eight flaps it again commenced another glide. The glide was, as far as I could judge, in the neighbourhood of 1 in 12 or 15.

Since then I have frequently seen the same species at the Mirafiori Aerodrome. Sometimes three or four are together and all exhibit the same performance.

In appearance this butterfly is of a reddish brown colour somewhat resembling a Red Admiral. The trailing edge of the near wing runs backwards into the form of a rounded lobe near the body.

So far I have not been able to secure a specimen as it is an extremely fast flier and when pursued it always turns tail to wind.

Another smaller species I have noticed flap-glides, but in this case the glides seldom last for more than a yard.

I should be extremely pleased to hear if other readers of *FLIGHT* have seen this phenomenon.

Turin, Italy, May 13th.

E. TEMPLE ROBINS.

Capt Penfold's Parachute Descents.

IN connection with the Empire Day celebrations at Edgware, Capt. Penfold made a balloon ascent, and after drifting some distance cut away his parachute, which opened and carried the aeronaut to within a hundred yards or so of the Hendon aerodrome. But for a gust of wind which blew the parachute back a little, Capt. Penfold would have landed in the Hendon enclosure. At the invitation of the aerodrome management, Capt. Penfold visited the flying ground, and spent some time inspecting the various machines before returning with his balloon to Edgware.

An Interesting Booklet.

FROM Mr. J. C. Savage, who is now the London Manager for Mr. B. C. Hucks, we have received a little brochure which he has compiled, and which should be found of great interest by promoters of outdoor events. It contains a foreword by Mr. Hucks, and also some biographical notes and other information which will doubtless prove useful to those who wish to provide up-to-date attractions at their meetings. A copy of the booklet, which is well

illustrated by photographs, can be obtained from Mr. B. C. Hucks, at 166, Piccadilly, W.

Tyres for Aeroplanes.

TYRES are very important details in a modern aeroplane, and it is vital that quality should be considered when arranging for wheels and tyres. It is interesting, therefore, to hear that the General Aviation Contractors, of 30, Regent Street, S.W., have recently acquired from the Spencer Moulton Tyre Co. the sole selling rights for the British Empire, Italy and the Italian colonies for their aeroplane tyres, which will now be sold as "G.A.C." Spencer Moulton aeroplane tyres. The high efficiency of the Spencer Moulton tyres is already too well known in connection with automobiles to need any additional remarks on that point.

A most important consideration, however, is that the G.A.C. have made arrangements to immediately manufacture any size whatever which may be required for the various machines, entirely irrespective of any standardisation. It is, of course, important that standardisation of aeroplane wheels should be effected as soon as possible, but until this is done, the firm are at all times prepared to specially manufacture any out-size that may not have been already made. The covers can be supplied in either the plain or thin ribbed types or with a heavier tread to any other reasonable pattern required.

The high efficiency, immediate delivery, low cost, and, what is very important, British manufacture, are points which should undoubtedly appeal to the constructors of this country. In addition, the firm are prepared to supply any size wheel, complete to fit any particular axle at reasonable prices, such wheels also being manufactured in England.

A Sunbeam-Engined Farman.

IN view of the wonderful speeds attained at Brooklands and elsewhere by cars built by the Sunbeam Co., it is of more than usual interest to learn that arrangements have been made for the installation of one of the new Sunbeam aviation engines in a Maurice Farman biplane which it is proposed to fly from Paris to London, and which will afterwards probably take part in the circuit of Britain waterplane competition.

Successes for the Pognon Plug.

ON terra firma and in the air successes continue to be achieved by the Hobson Pognon plug, and from Messrs. Bougie Pognon, Ltd., we learn that Nazzaro used these plugs when he won the Targa Florio Race in Sicily, as also did Savary when he made the world's altitude record for pilot and six passengers at Chartres recently.

PUBLICATIONS RECEIVED.

The Curtiss Aviation Book. By Glenn H. Curtiss and A. Post. London: Grant Richards, Ltd. Price 6s.

Oesterreichischer Aero Club. Year-Book, 1912-13. Vienna: The Austrian Aero Club.

Aeronautical Patents Published.

Applied for in 1912.

Published May 29th, 1913.

10,556. J. W. BOUGHTON. Propelling aerial machines.
10,633. A. PAFIN AND D. ROUILLY. Helicopters.
14,330. M. HERRMANN. Parachute for flying machines.
16,402. J. CLARKSON. Aerial propellers.
25,961. J. JIRASEK. Flying machines.

Applied for in 1913.

Published May 29th, 1913.

4,916. LUFT-FARZEUG GES. Suspension of airship cars.

FLIGHT.

44, ST. MARTIN'S LANE, LONDON, W.C.

Telegraphic address: Truditur, London. Telephone: 1828 Gerrard.

SUBSCRIPTION RATES.

FLIGHT will be forwarded, post free, at the following rates:—

UNITED KINGDOM.			ABROAD.		
	s.	d.		s.	d.
3 Months, Post Free ...	3	9	3 Months, Post Free ...	5	0
6 " " " ...	7	6	6 " " " ...	10	0
12 " " " ...	15	0	12 " " " ...	20	0

Cheques and Post Office Orders should be made payable to the Proprietors of *FLIGHT*, 44, St. Martin's Lane, W.C., and crossed London County and Westminster Bank, otherwise no responsibility will be accepted.

Should any difficulty be experienced in procuring *FLIGHT* from local news-vendors, intending readers can obtain each issue direct from the Publishing Office, by forwarding remittance as above.